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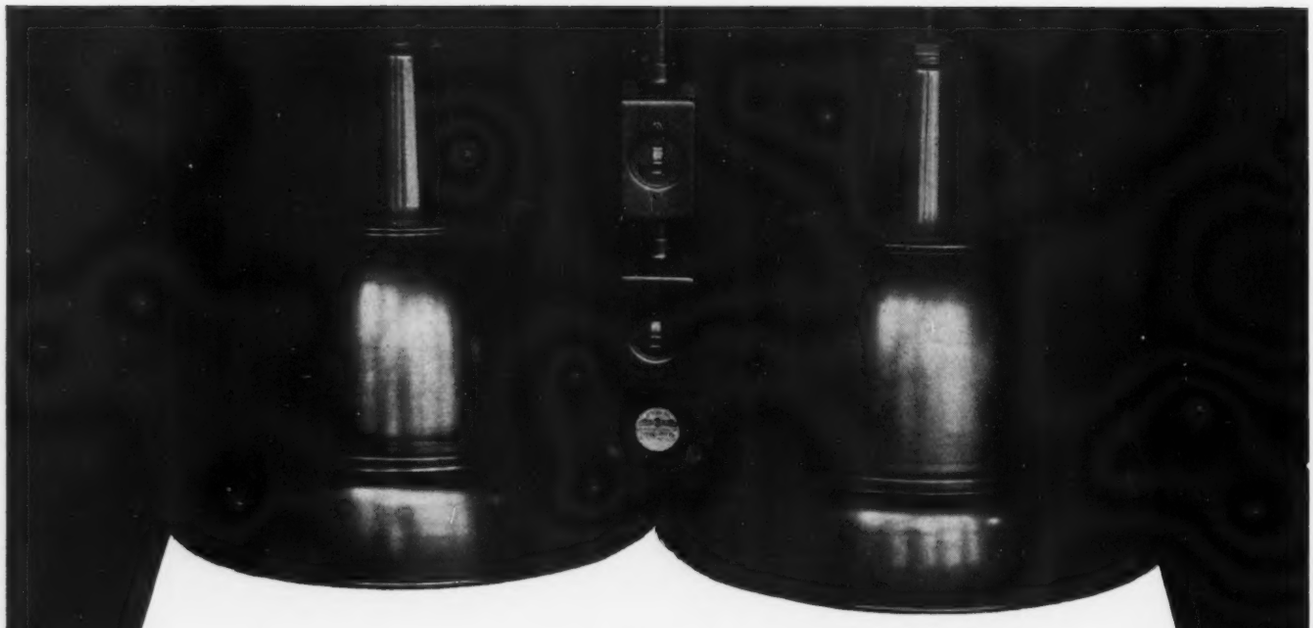

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Textile World

*November*, 1937

# MILL ENGINEERING SECTION

## A "CHECK-UP" TOUR THROUGH THE MILL

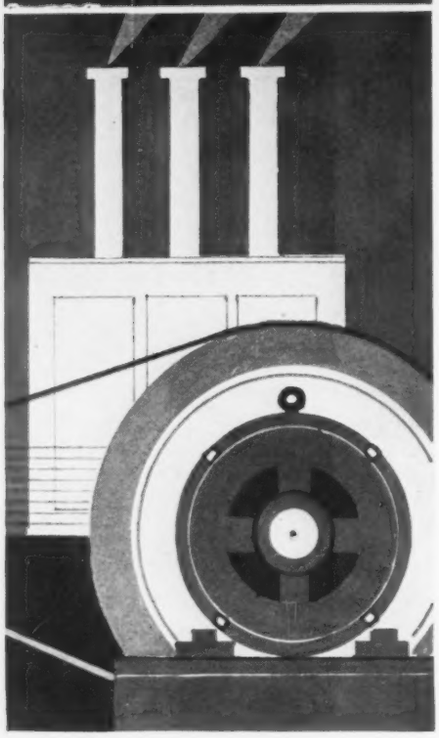
IN THIS SPECIAL Mill Engineering section, the editors of TEXTILE WORLD take the textile manufacturer on a "check-up" tour through his mill. The inspection includes all those so-called non-productive, but vital, phases of mill management embraced in the term Mill Engineering.

The purpose is to enable readers to catch up on the many new developments which have taken place in recent years in practically every one of those phases. The ensuing pages reveal the kaleidoscopic picture of this progress:

The trend toward higher steam pressures and temperatures in power generation; the development of more efficient drives, giving more uniformity and dependability in operation of machines; the increased application of pressure lubrication and the arrival of automatic lubrication; the experimentation with glass brick in buildings, with windowless mills, and—most recently—with sheet metal construction for industrial buildings; the increased application of air-conditioning for improving the comfort—and hence efficiency—of employees; the use of combination mercury-vapor and incandescent lamps for better lighting; the provision of improved machine tools for use in maintenance departments; the emphasis on water-purification necessitated by the demand for ever and ever better textile products; coordination in the control of textile processes—and a host of other possibilities for profit.

Possibilities for profit! That is the way a manufacturer should regard these new developments in this field. The savings which they can effect will form an important item in the profit and loss statement.

Too often there is a tendency to neglect these opportunities. Fortunately there has been a growing trend, of late, toward better organization of mill engineering departments and more effective utilization of them. That trend means money in the bank!—*Editor.*



**HIGH-PRESSURE BOILERS, ZONED AIR SUPPLY, DIESEL ENGINES, AND OTHER MODERN TYPES OF EQUIPMENT ARE AIDING TEXTILE MILLS TO INCREASE POWER-PLANT EFFICIENCY AND REDUCE POWER COSTS**

**By Textile World Editorial Staff**
IN COLLABORATION WITH
**Lockwood Greene Engineers, Inc.**

# 1. Power Generation

A SURVEY conducted by *Power* late in 1934 disclosed that at that time 43% of the power-generating equipment in a better-than-average group of textile mills was 10 to 20 years old; 37%, 20 years old and older. The study showed further that power costs range from 3 to 10% of the total cost of textile products. For quite a few years most textile companies were not financially able to take advantage of the numerous improvements in power-plant equipment. Recently, however, a large number of old plants have been rejuvenated and several entirely new plants have been installed.

In considering the more recent developments in power-generation equipment, one should remember that industrial power plants are subject to limitations which do not apply to central-station practice. The central-station plants are larger, and generally operate continuously with a better load factor. For these and other reasons, the central stations can afford to spend money for some refinements which would not be economical in the industrial power plant. On the other hand, the percentage of possible savings in industrial plants is greater than in central stations. The industrial power plant is an auxiliary to the producing unit. Simplicity and reliability are the primary requirements.

Textile mills which require a considerable amount of process steam are in a position to generate power as a byproduct, using steam for this purpose on its way from the boilers to the process. Other textile mills, in districts not favored by a low rate on purchased power from central stations, may find it economical to generate their own power by steam engines, steam turbines, or diesel engines, even when there is no demand for process steam.

The kind of power equipment which is most economical for a textile mill depends upon the size of the mill, the load factor, the process steam demand, and other local requirements, which vary, so that each case has to be studied before an intelligent solution can be reached. It is possible, however, to indicate some of the more important general trends in textile power plant modernization.

### BOILERS

Recent improvements in boilers have made possible higher pressures and higher ratings which produce better economies. Those plants which are large enough to approach central-station performance may take advantage of all improvements, but only a few industrial plants are in this class. Industrial practice is conservative with respect to high pressure and rejects appliances which require expensive attention or which may not be as reliable as some simpler though slightly less efficient equipment. Pressures, however, are much higher than formerly in industrial practice, and 600 lb. is now considered as conservative as 300 lb. was a few years ago. Thus in a study of fifteen installations made in textile mills and rayon plants since Jan. 1, 1936, ten are operating at pressures ranging from 425 to 725 lb. and temperatures from 500 to 780° F.

To meet greater steam and power demands, the superposed turbine or "top plant", which is now being used extensively by central stations, has under certain conditions, been found adaptable to textile mill use, particularly in plants in which the power load is high in relation to the steam load, or when it is not possible with low pressure to generate all the power required with the existing steam load. The superposed plant consists essentially of one or more high-pressure boilers operating at 400- to 750-lb. pressure and temperatures around 750 to 950° F. together with a non-condensing turbine large enough to use all the steam from the high-pressure boilers.

This new turbine exhausts into the high-pressure mains of the old plant, acting as a reducing valve, and generating a large amount of electric power with only a comparatively small lowering of the total heat in the original steam. Superposition of the high-pressure boiler and turbine under favorable conditions will give an increase of as much as 50% in the power output without any increase in the total amount of steam generated, or will permit the same power and process load to be maintained with about one-third less fuel. For the great majority of textile mills temperatures as high as 950° F. should not be considered, as they invite design and operating difficulties and are rarely necessary. Steam temperatures in industrial plants seldom exceed 800° F., and in many cases where all the extraction goes to process 650 to 750° will suffice.

Improved furnace design and construction have accounted for much of the improved boiler equipment. Water-cooled furnace walls, pre-heated air, automatic combustion control, and general improvement in furnace design and construction, with better refractory materials, have all contributed to more efficient boiler performance. A recent textile installation with an unusual feature consists of two 225-hp. water-tube boilers with water-wall construction around the furnaces, which are entirely inclosed with sheet-steel casing surrounding rock-wool insulation, 4 in. thick. The only brickwork is the lining of the furnace fronts and bridge walls. The cost of these

units compares favorably with that of horizontal return tubular boilers with brick settings; space requirements are less; the efficiency is higher; and there should be a decided saving in maintenance costs on account of getting rid of brick settings.

### FUEL SUPPLY DEVICES

Stokers, oil burners, and pulverized-coal equipment have kept pace with other improvements. At present, use of alloy castings for stoker parts is being investigated in an effort to find materials which will show better resistance to high temperatures and permit the efficient use of higher preheated air temperatures. Zoned air supply is a recent development which improves the operation of the underfeed stoker. The stoker is divided into three zones from front to back, and each zone is divided into sections across the stoker. Indicating instruments show how much the various dampers are open and how much air is being supplied to each zone, so that the fireman can immediately correct any local unbalance of the air supply or fuel bed. Installation of zoned air supply gives an increase of as much as 25% in the amount of fuel burned per square foot of grate surface. Incidentally, there is an increasingly marked trend in industrial plants toward the use of flue gases for preheating combustion air.

There is a noticeable trend toward use of pulverized coal at the present time, nine of the fifteen new plants mentioned above being designed to burn that type of fuel. However, many modern boiler plants are designed to be converted from oil to coal, or *vice versa*. These are normally designed for pulverized coal, because of the similarity between the furnace requirements for pulverized equipment and oil. Natural gas is not mentioned in this connection, because it is available only in limited areas for boiler fuel. Among the advantages of stokers are their simplicity, savings in preparatory costs, and ability to operate at very low loads. It should be noted here that many hand-fired plants have had both their capacity and efficiency increased by installing mechanical stokers and mechanical draft.

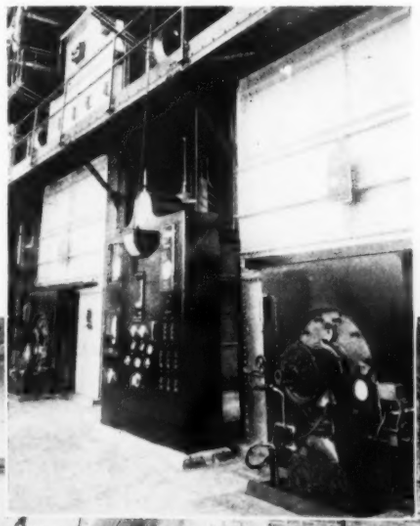
As boiler pressures increase, feedwater requires more attention, and, as a result, feedwater equipment has been improved to combine softening and deaeration. Treatment with anhydrous sodium sulphite is proving valuable for removing the last traces of oxygen which remain after the deaeration. Zeolite softening equipment has been made wholly automatic in its operation. Methods for the removal of silica from boiler feedwater—which is objectionable at pressures above 250 lb.—are being carefully studied, and the prevention of caustic embrittlement by maintenance of the proper sulphate-carbonate ratio is receiving more consideration than at any time in the past. Chemical treatment of feedwater for high-pressure boilers operating 100% make-up constitutes a real problem. Recent developments have made treatments practical for pressures as high as 900 lb.; but for any 100%-make-up plant operating at 400 lb. or over expert chemical advice should be obtained or there may be operating troubles. A treatment system for such a plant may include zeolite or lime-soda softener, filter, added treatment of boiler water with sodium phosphates, continuous blowdown with heat recovery, and finally a steam washer or purifier. With the aid of the central stations, equipment manufacturers have recently brought steam purifiers to a high stage of development, so that steam leaving the boilers can be almost completely freed of solids, thereby preventing choking of superheater tubes and formation of scale on turbine blades.

### DEVELOPMENT OF ECONOMIZERS

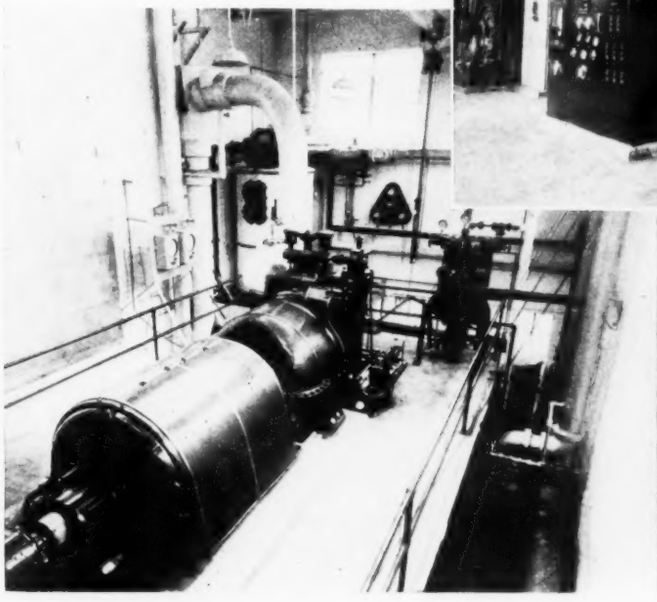
Since the capacity of the boiler is largely limited by the amount of fuel that can be burned under it, the improved furnaces have tended to make economizers and air-heating equipment more important as the volume and temperature of flue gases have increased. Furthermore, because of the naturally higher cost of heating surface and drums in high-pressure boilers, the tendency is to remove much of the surface from the boiler proper and substitute heat surfaces in economizers and preheaters. The fin-type economizer equipped with soot blowers is standard equipment for modern industrial plants.

Ash-handling equipment may not involve any radical improvements, but

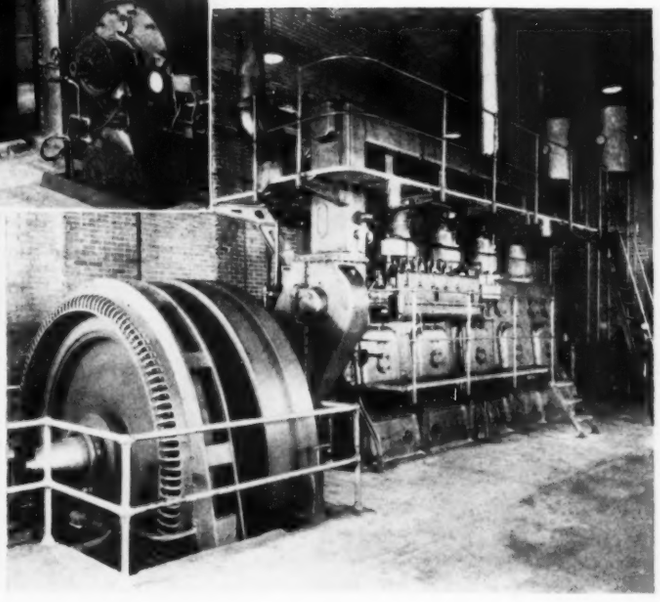
MODERN BOILER PLANT AT FORSTMANN WOOLEN CO.



TURBINE ROOM AT LANETT BLEACHERY & DYE WORKS



DIESEL ENGINE AT JEWEL COTTON MILLS



the average plant is better equipped than formerly for this requirement. Conveyors of various standard designs and provision for discharging from ash pit into dump are simple solutions. Some of the larger plants can afford more elaborate equipment, as, for instance, a powdered-coal installation where molten slag drops into a pool of water from which it is removed by a clamshell bucket.

Gages and controls show improvements from year to year as usual. Perhaps the most striking feature is the trend to automatic regulation through control by simpler and more reliable instruments than were formerly available. Among the instruments which have been improved recently are included $CO_2$ recorders and flowmeters. In addition, a number of entirely new types of instruments have been brought out. One recently developed control unit, for example, is designed to hold back pulverized coal, oil, or gas until the proper air flow has been established inside the furnace and thus prevent explosions which sometimes occur when a furnace is lighted. Other instruments are now available for measuring the shaft eccentricity, bearing vibration, and shell expansion of turbines while in operation.

### STEAM TURBINE-ELECTRIC GENERATORS

The steam turbine-electric generator has continued to supersede reciprocating equipment, due to its many obvious advantages, as well as to its adaptation to high-pressure steam. This type of equipment may now be considered standard for the average industrial plant. New turbines are being built to operate at higher temperatures and pressures than ever before; and extraction or "bleeding" units are being used wherever there is a demand for process steam. A development which should find application in textile mills where small amounts of low-pressure steam are required and no large extraction turbines are installed is a small mechanical-drive turbine equipped with extraction devices. Such units are built in sizes from 100 hp. upwards and to withstand a 450-lb. pressure. The units are of the multi-stage type with multi-port steam-inlet valve, giving high efficiency, and permitting the extraction to be made at the stage best suited for the desired extraction pressure.

### DIESEL ENGINE

Diesel-electric generating units installed under favorable conditions compete successfully with other methods of generating power. There is undoubtedly a field for this type of equipment in textile mills, and a number of installations have been made in recent years. The diesel is somewhat limited by the high first cost per horsepower, so that plants characterized by substantial peak loads require more expensive standby equipment with diesel engines than with steam. Formerly there was considerable heat loss in diesel operation; but with the newest types of units, the thermal efficiency is 60 to 70% or even higher. This, plus the low operating costs, makes the diesel well worth investigation. However, in textile mills which are large steam users, such as bleaching, dyeing, and finishing plants, conditions usually favor steam prime movers, the diesel being more adaptable to other types of plants.

### POWER-GENERATING UNITS

A recent development which has interesting possibilities is the self-contained, completely automatic steam generating unit. One such unit, which was announced less than a year ago, is designed to give high steam pressure and temperature, minimum weight and size per unit of steam produced, wide range of capacity with ability of the unit to respond quickly to wide variations in load conditions, adaptability to wide range of fuels, completely coordinated auxiliaries, completely coordinated automatic control, and units of simple design in sizes small enough to be portable. The units are intended for capacities of from 2,000 to 10,000 hp.

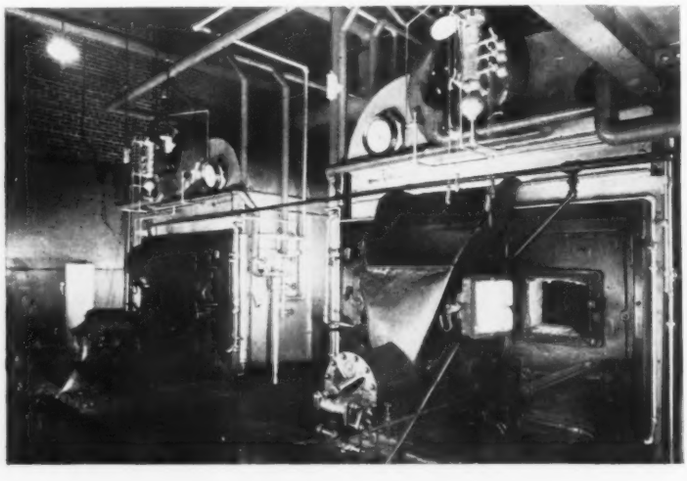
A somewhat different unit embodies a steam generator of the water-tube type, superheater, economizer, oil burner, and feedwater pump mounted on an angle-iron base, so that it is self-contained and can be moved about without having to build up brickwork, etc. Models are available having an evaporation of 500 to 1,200 lb. of water per hour and with operating pressures ranging from 50 to 1,000 lb. and temperatures up to 850° F.

### WATER-POWER EQUIPMENT

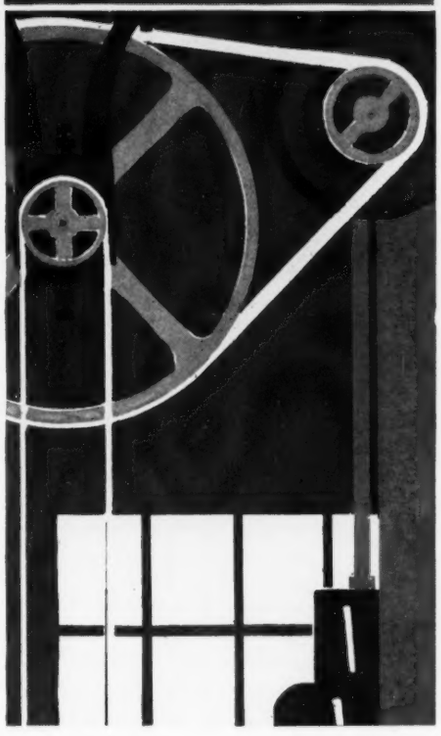
The economy of water power is beyond question whenever a steady supply of water is available at a site which can be developed at a reasonable cost. Although no major developments have occurred since the propeller type turbine was introduced some 20 years ago, there have been many minor improvements since then. These will not be considered here, as water power furnishes the motive force directly for a small percentage of the textile mills.

Electrical power distribution in textile mills is generally standardized at 550 volts. For this service the best switchboard practice provides the cubicle type of board with air breakers and the usual instruments and overload protection devices.

No attempt has been made in this brief survey to cover all the developments in power generation. Rather, the intention has been to point out the major trends and to give a few examples of actual installations which are permitting textile mills to meet greater demands for steam and power, to increase power-plant efficiency, and to reduce fuel costs. In many textile mills there is no other department where savings can be made more readily than in the power plant. On the basis of percentage reduction in total cost of product, the possible savings may seem small to the company executives. However, when the percentage figures are translated into dollars and cents, the advantages of power-plant modernization become fully apparent. In considering proposed appropriations for power-plant improvements it is advisable, therefore, to get away from a discussion of boiler efficiency and other technical factors, and to think in terms of the net dollars-and-cents annual savings which can be effected by installation of modern equipment.



WATER-WALL CONSTRUCTION AROUND FURNACES IS FEATURE OF THIS RECENT TEXTILE INSTALLATION



SOUND PRACTICE IN BOTH ELECTRICAL AND MECHANICAL TRANSMISSION — NEW IDEAS AND NEW APPLICATION OF OLD IDEAS

By Earle Mauldin
SOUTHERN EDITOR, TEXTILE WORLD

# 2. Power Transmission

IN APPROACHING the subject of power transmission, we think naturally of two main divisions; electrical and mechanical transmission. There are few mills today that do not employ both kinds, and it is sometimes difficult to determine just where the line of demarcation should fall.

It is not our purpose to present an exhaustive study of all phases of the subject, nor of any one, but rather to touch on those points where new developments, new ideas, new trends, have opened up interesting and arresting lines of thought.

### ELECTRICAL TRANSMISSION

For the purposes of this discussion we shall assume that electrical transmission includes the switchboard at the incoming end of the system and extends up to the point of application; for example, to and including the motor on an individually driven loom.

*Switchboards*—In the more modern installations switchboards are generally made of steel. Marble, slate, or composition boards are seldom used except for match- and line-up purposes. Steel is more economical and lends itself readily to packaging. Switchboards that can be completely assembled on the shop floor and shipped with instruments attached reduce to a minimum the field work required. Grounding is simpler and can be more effectively accomplished with the steel switchboard, and the safety factor is increased.

Panels are generally 16 in. wide and either 76 or 90 in. high. The No. 1 panel is usually the incoming line from generator or outside power source. Additional panels are furnished as required by the number of feeder lines. The incoming-line panel should be provided with instruments for reading 3-phase voltage, 3-phase current, watts, and kilowatt hours. A power-factor indicator is also a valuable addition. Accepted practice limits feeder lines at time of installation to 400 amp. maximum, but 600-amp. breakers are installed in these lines. Voltage for textile plants tends to become standardized at 550 volts.

Until a few years ago oil-breakers were used in almost all cases, mounted one to a panel in the typical installation. Great improvement has been made in oil-breaker arrangements by mounting them remote from the switchboard and by providing electric as well as manual control. The advent of the copper-oxide rectifier has simplified use of the alternating-current source for the control circuit. The substitution of air-breakers for the oil-breakers has enabled the manufacturers to mount safely two, and sometimes three, feeder line breakers in one panel, with resulting economy of floor space. The air-breakers are more compact, safer, more economical. Circuit breakers are equipped with silver contacts, since it has been determined that silver and its salts of oxidation are excellent conductors.

Each panel of the switchboard should be equipped with test receptacles, or jacks, for determining the accuracy of meters and testing the power factor of circuits by means of portable instruments. It is good practice to provide for each feeder panel, instruments for balanced current readings and 3-phase kilowatt readings. It is sometimes desirable to obtain these readings by means of one instrument mounted on the incoming-line panel with suitable keys and transfer switches. This enables the operator to determine at any time the power factor and other characteristics of any line in the plant. Undoubtedly such information can be of great value to the manager who watches the economy of operation of each unit of the plant as well as the plant as a whole.

### WIRING AND CONDUIT

The open-wire system is rapidly being superseded by conduit work. It does, however, possess certain advantages which are recognized by some plant engineers. Where feeders of over-size capacity are installed in three-wire open system, there is a certain flexibility, an ease of changing connections, a saving in both time and materials in switching machinery quickly to new locations, and hurriedly installing new equipment. In some mills this is worth considering.

To combine these advantages of the open system with the safety of the conduit job, a built-up arrangement of bars has been introduced. Generally speaking, the idea is to install three bars, or conductors, of sufficient cross-sectional area, in a metal case or runway with top that is easily removable. Connections can then be made to the feeder at any place and, if necessary, without cutting off the current.

The accepted method of installation for the distribution system is by use of conduit. From the switchboard, power cables of varnished cambric are run in conduit to distribution panels throughout the plant, or to fused switch boxes in branch circuits. Varnished cambric is preferred to rubber-covered because of better heat resistance as well as lower cost. For small motors, such as loom motors, or others in moist, hot, or oily locations, 30% rubber-coated is frequently used. Conduit generally is hot-dipped galvanized, and provided with galvanized fittings. For extreme conditions where corrosive gases or elements, exist, a conduit with a special protective coat-

ing of varnish or lacquer can be procured. Fittings can also be had in cadmium-plated finish.

Several advantages result from the use of flexible conduit for connections from rigid conduit to motor. Among these are adaptability in case of change in size or type of motor, ease of installation, economy.

### CONTROLS REFINED

There is a distinct tendency toward greater refinement in controls. The hand-operated switches are being largely replaced by the more convenient, safer magnetic push-button control. For motors that are started only once or twice a day the hand starting compensator is still acceptable and frequently preferred due to its relatively low cost. A motor installation requires a disconnect switch and a motor starter. This starter might be a manually-operated type or a magnetic type and might be controlled by push button, float switch, pressure regulator, or other control device.

It was formerly customary to install the safety disconnect switch as a separate unit, but more recently it has become general practice to combine safety switch and motor starter as a unit in one case or inclosure. This is known as the combination starter and is becoming increasingly popular. Such combinations require less wiring, save time, and are neater looking.

Dustproof, water-tight, or explosion-proof types of inclosures can be obtained where desired.

Line starters with arc-blowout or arc-quenching devices are popular for motor control.

The air circuit-breaker type of control has one advantage over the older-type fused circuit breaker which is generally recognized. This advantage is the big saving in time, both for men and machines, when necessary to replace blown fuses on account of momentary overloads. These quick surges which blow the fuses are taken by the new-type switches in their stride and, if only momentary, the time element prevents tripping.

*Electrical Devices*—Among the new devices which occasionally find places to serve in the textile industry we might mention the photo-electric relay. In the newer types no amplifier tube is required. The impulse from the phototube is impressed directly upon a form of vacuum tube which holds a magnetic contactor capable of making or breaking 35-amp. alternating current or carrying 10 amp. continuously. The speed of operation is such that a flash, or interruption of only 1/20 of a second on a 60-cycle power supply, is sufficient to cause the operation of the magnetic contactor.

There is also a compact time-delay device of the push-button type designed for use in connection with a magnetic motor starter to prevent shutdowns on voltage disturbances of short duration. The time delay is adjustable from 1 to 4 seconds.

*Power-Factor Correction*—The use of capacitors in correcting power factor is attracting considerable attention, especially in those sections where the utility companies offer inducements in lower rates for high-power-factor consumers. The capacitors should be located as near as possible to the point of application of the load. High power-factor consumption enables utilities to deliver and sell more power with no additional capital investment. This economy they are passing on to their customers in a lower rate, and in each case the economy of purchasing the corrective equipment can be determined in advance. An analysis of the cost at one typical plant showed that the saving that could be effected in power cost would pay for the additional equipment in 1¼ years.

### MOST MOTORS TAILORED

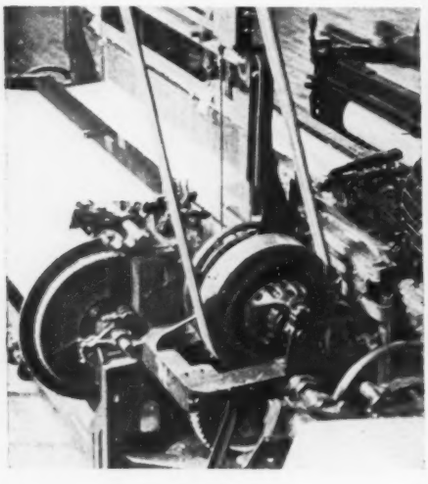
*Motors*—With the exception of large motors for group drives, where general-purpose motors are used, most of the motors in the modern textile plant are "tailored" for the job. For the four-frame drive on spinning, twisting, and roving, preferred by some engineers, two-bearing motors can be furnished with two pulleys at each end or three-bearing motors can be used with all four pulleys on one shaft extension. Other arrangements call for four-bearing motors connected to shaft through a flexible coupling and driving two, or four pulleys.

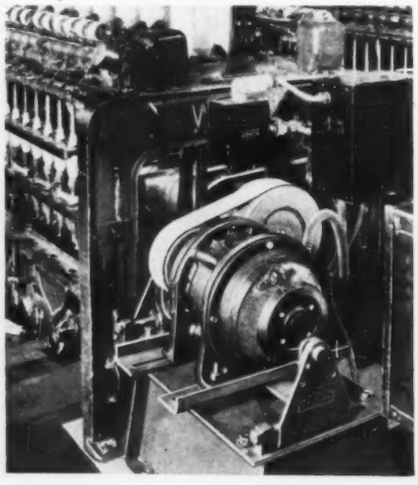
Where individual motors are used for spinning frames or in other places where lint or "fly" is in the air, the screenless motors designed to clean themselves are proving popular. These motors are designed with smooth, clear passages to discourage accumulation of lint and are also provided with a fan or blower to force a strong current of air through the passages and keep them blown out and lint-free at all times. The motors have ball bearings in the interest of cleanliness and so call for a minimum of lubrication.

For hazardous locations totally enclosed fan-cooled motors are available. For damp spots, such as are frequently encountered in bleachery and dyehouse and finishing plant, there is a splash-proof design that is proving popular. In these cases it may be well to consider also special alkali- and acid-resisting installations.

For looms totally enclosed motors are frequently used. These loom motors are usually provided with waste-packed bearings and special windings for loom service. High-inertia rotors smooth out the pulsations of the loom

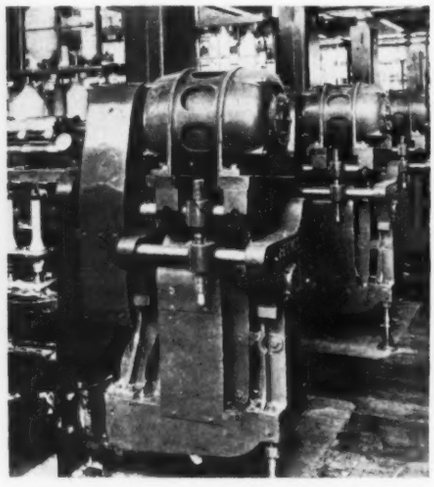
ENERGY DRIVES ON X-MODEL LOOM OPERATING AT 193.3 PICKS PER MIN.

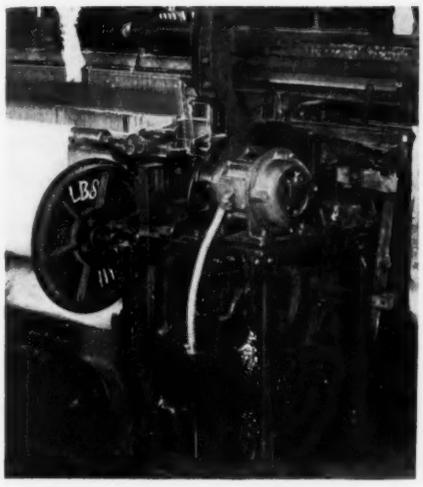




INDIVIDUAL SILENT-CHAIN DRIVE IN TYPICAL SPINNING ROOM INSTALLATION

SHORT-CENTER BELTED DRIVE ON SPINNING FRAME





INDIVIDUAL MOTOR DRIVE ON LOOMS

drive. With this design a minimum of power is required for the operating cycle of the loom. Loom motors are generally designed with a large factor of safety to compensate for the severity of service which they are expected to deliver. Frequent startings, breaking-in periods, etc., impose extra duty on these units, and it is well to have this extra service built in.

To guard against various causes of overheating, such as high room temperature, abnormal voltage, phase failure, or ventilation failure, as well as frequent starting, motors are now sometimes equipped with a built-in disk thermostat which gives adequate protection against destructive overheating. This device can be arranged to give a visible or audible signal, to shut off current, or to interrupt current temporarily and then automatically restart when the motor has cooled to a safe operating temperature. This protection can be had in induction, synchronous, direct-current motors.

In special cases where low speeds are required, gearmotors or speed reducers are available. These units are positive, highly efficient, reliable, and economical of space. Their use in textile plants, however, is rather limited.

There is a decided tendency on the part of motor manufacturers to improve the appearance of the units. One has only to compare the modernized, efficient, streamlined unit of today with the fussy model of a few years back to appreciate the change.

*Portable Instruments*—For the plant engineer who would check carefully on the performance of various units of his installation, many portable instruments are available, such as voltmeter, wattmeter, ammeter, each attractively mounted in light, convenient case. There is also one case which contains all the necessary elements voltmeter, ammeter, wattmeter, power-factor indicator, transformers, etc. for making complete alternating-current tests up to 125 amp., 600 volts, on single-, two-, or three-phase circuits. Or it may be used with transformers for higher capacities.

## MECHANICAL TRANSMISSION

*Mechanical Power Transmission* might be considered as including all those devices for transfer of power from the prime mover to the machine. Before the general acceptance of the electric motor, power was transmitted throughout the entire plant by means of shafting, pulleys, belts, ropes, etc. Now that much of this has been rendered obsolete, there might be a tendency to overlook the importance of those features of mechanical transmission that remain and which have improved and developed hand in hand with its new companion, electrical transmission. Improvements have taken place not only in the equipment and materials employed, but to a still greater extent in the manner in which the mechanical-drive installation is studied and analyzed and engineered. In recent years a considerable amount of this analysis has been undertaken by the Power Transmission Council, a voluntary association of manufacturers of materials and equipment being used in power application. The council has conducted surveys, made case studies, and collected much valuable data covering the general field of power transmission. It has been particularly successful in determining the advantages of group drive for specific applications.

*Shafting*—Layouts of shafting reflect this tendency. Formerly it was the accepted practice to locate hangers for line- or counter-shaft on each main timber of the mill and to space the pulleys driving the machines as required regardless of the relative location of the hangers. In later and more modern installations steel channel supports spanning from beam to beam give the line of shafting underneath a firm, steady, continuous bearing point for location of hangers adjacent to each pulley or load. Correct level and alignment are easily maintained, power losses eliminated, sizes of shafting reduced, speeds increased.

*Hangers*—Hangers for slow-moving shafts of older installation are generally ring-oiling type. These have the advantage of low first cost and are quite satisfactory where alignment is maintained.

For the later high-speed installations anti-friction bearings are being largely used. These are available in both ball and roller bearings. While

CLOSE-UP VIEW OF 5-HP. MOTOR WITH MULTI-V-BELT DRIVE AS APPLIED TO SPINNING FRAME

the initial cost is high, they frequently justify the expenditure in a saving of power and maintenance expense. Usually they require lubrication only once a year; and, since they are effectively sealed against leakage, they are more reliable than the ring-oiling type, which not infrequently caused damage to product by oil drippings. Hangers of both cast iron and pressed steel can be obtained with adjustments which permit both vertical and horizontal movement, and anti-friction bearings can be had for most of the standard makes of ring-oiling hanger frames.

*Couplings*—The old so-called "Collins" double-compression coupling is still considered by some to be unsurpassed for long life and freedom from care. On the other hand, the use of compression couplings of the flange type with tapered bore and tapered split sleeve is on the increase and is favored by many millwrights. This is due, perhaps, to simplicity of construction and ease of application. No keyways in the ends of the shafting are required with this type of coupling. The use of flexible couplings is limited in the textile industry. They are appreciated, however, in connection with direct drives for fans, blowers, and compressors.

*Clutches*—Where it is desired so to arrange that the load can be connected to, or disconnected from, the power source at will, a clutch is used. There are several types available, such as jaw clutch (square or spiral), friction, combination. The individual requirements of the job usually determine the type of clutch employed. The clutch is a better medium for accomplishing what the tight- and loose-pulley combination does, although the first cost is higher. It may be mounted either on the shaft or, as is more commonly the case, on the machine itself.

The use of this device reduces belt costs by saving the wear and tear that accompanies the belt shifting with the tight-loose pulley arrangement. And, since the machine comes up to speed more quickly when the clutch is employed, there should be a production gain. They have long been in use in the finishing plant and have in more recent years not only supplanted the tight- and loose-pulley arrangement on loom drives but have become an integral part of individual motor drives.

*Pulleys*—The use of wood, or paper, for motor pulleys is almost universal. These materials have a high friction coefficient which is very desirable, especially as motor pulleys are of relatively small diameter. Lineshaft pulleys are of wood, cast iron, steel. Split pulleys can be obtained in either of these materials and are becoming increasingly popular on account of the ease of erection. It is very important that all high-speed pulleys be carefully and accurately balanced. Where tight and loose pulleys are used for intermittent operations, the loose pulley is either bronze bushed or provided with an anti-friction bearing, which is preferable for maintenance.

*Belts* are of two general types: leather and rubber. The rubber belt is a combination of rubber and fabric, properly vulcanized.

It is most important to see that sufficient belt is used to transmit power at reasonable tension. It is decidedly preferable to have a little too much, rather than just barely sufficient, belt for any particular job. This practice will insure long life, infrequent take-ups for stretch, and reasonable bearing pressures with all the accompanying advantages to the bearings.

Belts may be either endless or spliced. For heavy loads, and in fact in all cases where provision can be made for taking up stretch, the endless belt is gaining in popularity. This take-up is sometimes provided for by use of the pivoted motor base, or by an idler, or by sliding the motor on a specially designed sliding base. Where it is impractical to use the endless belt, a belt fastener is used to make the splice. These fasteners are generally metallic, and there are several satisfactory types available. It is very important that the ends of the belt be cut square and the splice be carefully made to insure a smooth-running spliced belt.

*V-Belt* drives may be of the V-V type where both drives and driven sheaves are grooved or they may be of the V-flat type where only the driver is grooved, the driven member being a standard flat-face pulley. While the latter is not generally recommended, it does prove to be advantageous in certain cases where flat pulleys would have to be discarded.

*Short-Center Drive*—Low first cost and saving in space are in favor of the short-center drive, and the performance is equal to that of the long-belt drive. There are three types of short-center drive available: (1) flat belt with pivoted or swinging motor base to control belt tension, (2) V-belt, and (3) silent chain, encased to provide for proper lubrication. All of these drives perform excellently when properly engineered and correctly installed. The short-center drive probably owes its rapid adoption to the individual-motor installation; but since it has served so well in that connection it has been called on to prove its worth in driving lineshafts and for other general duties.

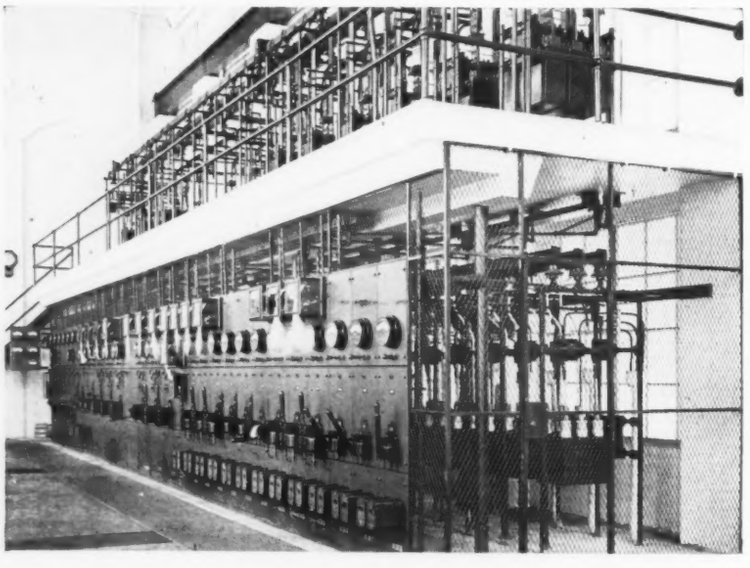
*Chain Drives* are frequently used in short-center installations, as mentioned in the preceding paragraph and at other places where a positive drive of long life is required. Slippage is entirely eliminated; power losses are reduced to a minimum. Generally they are completely housed and operate in oil, requiring attention only once or twice a year. Variable-speed transmission equipment usually makes use of chains of special type. Roller chains, generally single strand, are used satisfactorily where shaft speeds are relatively low and positive drive desired.

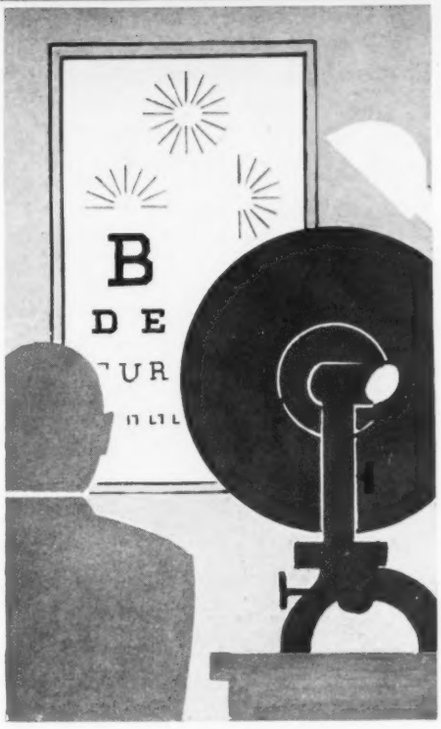
*Variable-Speed Transmission*—Variable speed by means of cones is old in the textile industry, but new applications of modern variable-speed transmission have been highlights in the industry's recent news. Especially in the finishing departments modern variable-speed transmission has proved useful, the variation in speed enabling the operator to maintain a uniform flow of material through continuous-process machines, such as the drying cans, where proper compensation is automatically made for shrinkage. Compensation for the constantly changing size of beam can be provided in the slasher process. Successful applications have also been made in connection with bale breakers, one-process pickers, high-speed warpers, beamers, and continuous dyeing machines. Variable-speed drives have been installed with some success in spinning frames and twisters, although experiments to improve these applications are being continued. The theory here is to gain production by taking advantage of the fact that the traveler speed can be increased as the bobbin fills up.

*Energy Drive*—The Energy Drive for looms deserves particular mention. The theory which underlies this drive, a development of the Power Transmission Council, is simply one of smoothing out an intermittent load by applying a weighted fly wheel to the driven shaft of the machine. With this device installed it has been found that looms can be run faster with corresponding increase in production. It has been successfully used in connection with X-model and E-model looms.

*Belt Dressings*—For leather belts a light-consistency liquid preserver is recommended. This is applied with a squirt can or wiped on with clean waste. Manufacturers of rubber and composition belts recommend that these belts be kept clean by using a mild soap and water solution and using no dressing whatever. However, in some cases where an old rubber belt has lost its traction, it can be partially restored by light application of castor oil or other vegetable oil.

SWITCHBOARD CONTROLLING DISTRIBUTION OF POWER IN LARGE TEXTILE PLANT






BETTER LIGHTING PAYS BIG DIVIDENDS ON INVESTMENT — TESTS AS CHECK ON LIGHTING AND EYESIGHT — MUST HAVE LIGHT FOR SIGHT

**By Roy A. Palmer**
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# 3. Lighting and Seeing

A TEXTILE EXECUTIVE whose duty it is to hire workers would not knowingly employ a blind person, or even one who is partially blind, to perform the work of a spinner, weaver, or other class of operator. Yet that same executive rarely considers the worker's ability to see as an important tool which he must use in production. Seeing easily, quickly, and accurately is a necessary asset to workers in every department of a textile mill. Good lighting is required for good seeing—which, in turn, has a bearing on production, safety, and employee welfare. Very often an executive may feel that his plant does not need much light or that an improvement in lighting would provide "too much light" and, therefore, is unnecessary. However lighting and seeing are too important in the work-world of today to dismiss without careful consideration.

For many years scientists have been studying the eye, the process of seeing and resultant human reactions. They have learned that seeing drains nervous energy in proportion to the difficulty of seeing, which accounts for fatigue on the part of workers who expend little physical energy in their work. Lowered production and accidents can be traced to such fatigue.

Instruments have been developed which enable us to make measurements showing how much light is being provided, how much light is needed for seeing a given task with the same comfort as reading a well-printed book, and what degree of brightness may hinder rather than aid vision. In competent hands these instruments are valuable aids to planning lighting for seeing—rather than haphazard lighting, with cost alone as a criterion, which usually means an unwisely spent lighting dollar.

Realizing that the seeing of workers is so important, some mill executives have given attention, not only to the lighting, but to the eyesight of individuals. With the best of lighting, the workers' seeing might not be at its best because of defective eyesight. As an example, Chipman - LaCrosse Hosiery Mills Co., Hendersonville, N. C., has a room fitted with eye-testing equipment. An eyesight specialist regularly examines the eyes of all the workers in the mill, which, incidentally, is equipped with an excellent lighting system.

### IMPROVED LIGHT SOURCES

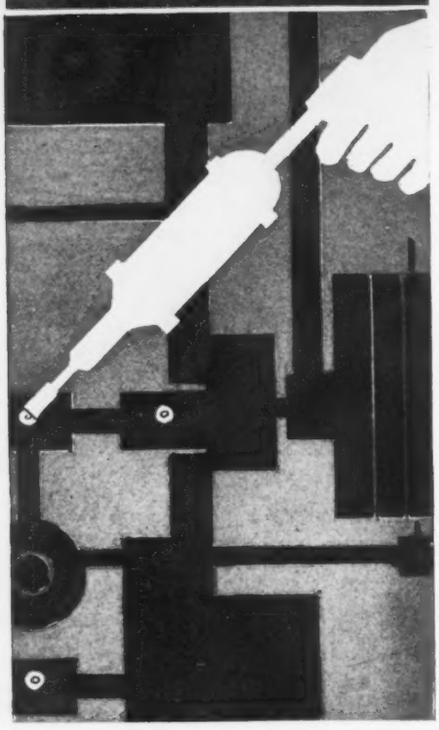
Stepping along with the progress in seeing knowledge is the development and improvement in light sources and reflecting equipment. Thus, the well-known high-intensity mercury-vapor lamps, which provide about twice as much light as the standard tungsten-filament lamps, have been improved in that the delayed starting period has been reduced quite considerably. Where tungsten-filament lamps are used in combination with the mercury lamps, the color-quality of the light is improved, a very fair degree of white light being obtained. Low-pressure mercury-vapor tubes have also been improved and now produce more light with a reduction of about 100 watts per tube in current consumption. Recently combination units employing these tubes and tungsten-filament lamps have been made available. These combination units are equipped with flashed-opal glass cover plates, which not only reduce the brightness of the lamps, but also assist in mixing the colors of the mercury and tungsten lamps.

While the combination units produce a white light which is pleasing and will serve adequately for certain inspections where color discrimination is only casual, they should not be expected to provide light for color matching. Standard color-matching units giving a more scientifically accurate white light are available for this particular purpose.

In addition to the combination units for industrial work rooms, units employing mercury and tungsten lamps of the totally indirect type are proving popular for mill offices. Higher wattage is used in tungsten lamps than in industrial units, in order to reduce the greenish color present from the mercury lamp.

In tungsten-filament lamps, some sizes are now being fitted with filaments which have been coiled twice and referred to as coiled-coil filaments. This reduces the heat losses and thereby increases the light output of the lamp for the same current consumption. Another interesting lamp is the tubular 1,000-watt lamp having a prong base, instead of the conventional screw base. This lamp is quite ideal for outdoor flood-lighting in open-type reflectors. The bulb is of Pyrex glass, which will withstand rain when heated to full temperature in operation. It is lower in cost than the standard 1,000-watt lamp and, because of its smaller size, will find wide application in offices where a small sized fixture is desirable, but high wattage is necessary for easy seeing.

More light for the same current consumption, lower prices on lamps, and low electric rates have brought the cost of lighting down so that it is lower now than ever before in history. Where yesterday lighting was considered an expense, today it is an investment that pays big dividends in lower production costs, improved employee morale, lower spoilage, and fewer accidents.



A LUBRICATION ENGINEER ON THE TEXTILE-MILL STAFF IS ONE OF INDUSTRY'S MAJOR NEEDS

# 4. Lubrication Practices

THE TEXTILE INDUSTRY operates machines which run the gamut from cotton-bale openers with their simple spiked aprons and few cylinders to full-fashioned hosiery machines with 130,000 parts each; and it is generally conceded that the industry has to take care of more bearings than any other industry in the world. One might reasonably expect, therefore, that it would long ago have developed the last word in systematized lubrication. But this is not the case, as a few specific examples may help to show.

Not so long ago the representative of a large oil company was called, in a great hurry and with very little courtesy, to a cotton mill which was having serious trouble with overheated spinning spindles. What did he discover? You would hardly believe it, but he found that the spinning-room oiler had got his containers confused in his mind and was feeding the spindles with general-purpose oil! The containers were unmarked.

Just the other day, to quote a different sort of an example, it was discovered that the overseer of a large jacquard weave shed had for years been lightening his heavy loom oil, during the winter months, by adding to it a considerable quantity of a special white oil he had been purchasing primarily to spray on his needles and hooks in order that staining of the warp threads might be avoided. The white oil cost 60¢ a gallon, and he could have bought a light loom oil for perhaps 35¢.

Outstanding examples of poor lubricating practices are interesting, but more impressive still are the bearing failures, due to insufficient or improper lubrication, that take place day in and day out throughout the industry—failures due to carelessness, to ignorance of mechanisms and lubricants, and to the too-common assignment of lubrication to untrained boys or feeble old men. Nor can we overlook the heavy damage to textile materials caused every day by over-lubrication.

### ENGINEER NEEDED

The moral to be learned from all this is that lubrication is a phase of mill operation which demands a study and recognition in its own right. In other words, it is time we learned that a special problem so divorced technically from the other problems and responsibilities of operating executives should be put in the hands of a specialist. Therefore, the first lubrication matter that should be given attention in a self-analysis of the sort recommended in this Mill-Engineering Number is the mill's lubrication system or organization.

Certain outstanding textile mills have adopted a centralized lubrication organization; but to find an industry which has pretty generally standardized on the practice, one must first look to steel manufacture, which has long placed the responsibility for its oiling and greasing in one man in each plant, and to paper manufacture, which has adopted the same practice more recently. In each textile mill is needed a lubrication engineer who knows textile machines, knows lubricants, is acquainted with lubricating devices and practices, and has the ability to chart, coordinate, and supervise the lubrication procedures of the various departments.

### SELECTION OF LUBRICANT

What else, besides the lubrication system, needs to be checked up? Surprisingly enough, the lubricants being used do not necessarily need extensive checking. A mill which deals with any of the reliable, well-established oil companies in the field today and lets the engineers of that company cooperate as fully as they are prepared to do, may have confidence that its lubricants are of good quality and well selected. These engineers not only know their business, but they are anxious to give good service and provide their customers with the best products, compatible with economy, available for the purpose in question. Competition drives them to this, and their opinions and recommendations are backed up by the work of the very efficient research laboratories now maintained by the leading petroleum concerns.

It is for this reason that the mill's lubrication engineer, whose existence we recommend, will not be obliged to establish a laboratory of his own or maintain a staff for checking the quality of lubricants. He need not know very much about chemical terms and formulas. To this extent, his responsibilities are light and the lubrication situation is a happy one. A word of warning, though—the mill must let the petroleum company's engineers into the plant to study its equipment; the old opposition to "strangers in the mill"—now rare in the South but still too common in the North—must not be allowed to interfere.

### IMPROVEMENTS MADE

And yet, while the mill man need not, as we have suggested, concern himself too much about the quality and suitability of his lubricants, it is worth while to note, in passing, that the quality of lubricants for specific purposes has increased surprisingly in recent years. There was a time when viscosity was considered the most important property of an oil. In reality

viscosity is a measure only of pumpability. In a spindle oil, for example, this is important; but even more important is chemical stability—that is, the resistance of the oil to oxidation, which results in the accumulation of gum and sometimes tar in the bearing, these being hindrances to free circulation of the oil.

In recent years oils of reasonable price have been developed having remarkable stability. Other new oils contain film-strength agents which permit lower viscosities. Still others are so adhesive in character as to permit little danger of their leaving the bearings and staining goods. Rayon presents a serious problem with respect to spotting, as the oil cannot be removed from it easily; and therefore most new rayon throwing machinery is equipped with the so-called oilless bearings. These bearings are in reality impregnated with oil that oozes out to the friction surfaces when the temperature of the bearings rises. Zinc in suspension is contained in one new lubricant, on the theory that it will plate the friction surfaces and afford a relatively permanent smoothness. And research to improve the properties of lubricants even further is being constantly carried on.

### LUBRICATING DEVICES

One branch of progress in the lubrication field which deserves particular attention involves lubricating devices. To a considerable extent these are labor-saving devices, even if we are talking only of the relatively inexpensive oil cups, bottle oilers, and other types of reservoirs, some of which have ingenious constant-level controls. There has been marked progress toward adoption of the pressure gun and fitting, which not only reduce the frequency of lubrication but also insure the effective application of the lubricant, particularly in textile mills, where lint and dirt tend to clog open oil holes. The pressure system makes possible the use of a lubricant which is only semi-fluid on some bearings that cannot be reached by such a lubricant without pressure and thereby affords an opportunity to reduce the dripping and splattering of oil on goods and the loss of oil through bearing leakage.

There is a budding trend toward automatic lubrication, in place of hand oiling. It cannot be said positively that automatic equipment will reduce power loads, but it is likely to increase the reliability of lubrication and is certain to reduce labor cost. These reasons are sufficient to justify its adoption. In addition, any closed metered system has an advantage in reducing the danger of oil spotting.

Automatic devices of course range from the simple wick oilers to the more complicated and highly ingenious centralized-feed systems, including so-called one-shot types, whereby all the bearings in a machine are lubricated by the moving of a single lever or button. Applications of automatic forced-feed lubrication equipment have to date been largely confined to looms and warpers and the heads of spinning frames, roving frames, and twisters. Although early difficulties with the systems, mainly with respect to clogging of the outlets, have been overcome, they have not as yet become common in the textile field. Our industry, in this respect, is said to be lagging far behind the machine-tool, paper-printing, and several other machine-using industries.

### ANTI-FRICTION BEARINGS

One trend related to and affecting the lubrication problem that definitely is under way is the more extensive use of roller and ball bearings. Such failures of these bearings as occur, and it cannot be said that they are entirely free from the failure problem, are due to the oxidizing and caking of a poorly selected lubricant—that is, one having inferior stability. In some cases, of course, such bearings are allowed to run dry; but at the present time, with the transition from plain to anti-friction bearings so recent and the need for frequent lubrication so fresh in the lubricating man's mind, this danger is comparatively slight. If a proper lubricant is provided and the bearings are lubricated once a month, about the only problem left is that of deciding how much lubricant to put in. Too much is almost as bad as too little. On small bearings, which usually have no indicating vent, this today is largely guesswork.

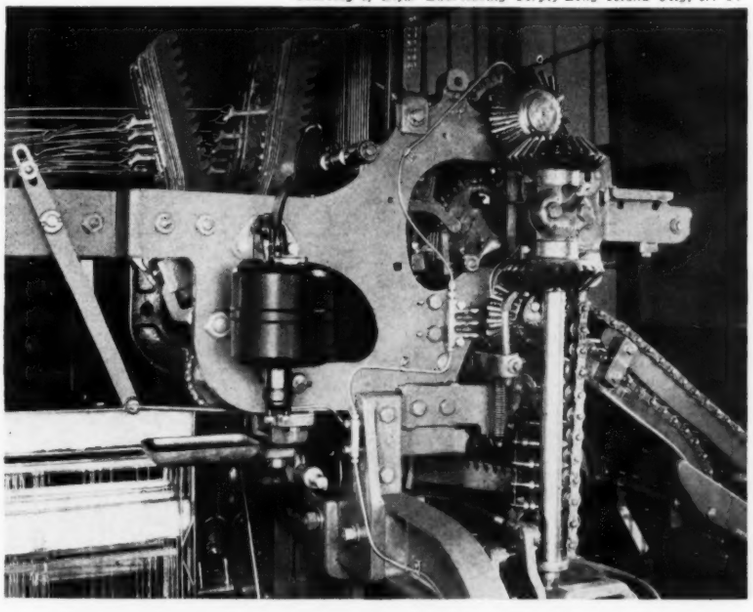
Still another trend of importance in connection with lubrication is that toward the increased speed of textile machinery. As speeds are changed, lubrication must be changed. This is another place, however, where considerable reliance can be placed on the petroleum companies, who are working closely with the machine builders to be sure that the lubricants keep pace with the machines. Perhaps in the future the industry must increase its use of specialized lubricants, but it must resist unnecessary complication.

### OF FIRST IMPORTANCE

In this article we have considered the future from several angles, but the thought it seems most essential for us to retain and act upon at an early date is the desirability of placing the responsibility under a mill lubrication engineer. He will study methods, means, and necessary frequency of lubrication for all departments in the plant. We believe that his work will early result in a marked reduction in the number of hot and noisy bearings, chains, cams, and gears—preludes to the failures which lead to lost production, high repair expense, and lost employee wages. There will be fewer seconds caused by oil spotting. There will be a reduction in power consumption. Yarns will be spun and fabrics woven more evenly. There will be less lubricant wasted. Let's give the plan a try.

WORSTED LOOM EQUIPPED WITH ONE-SHOT LUBRICATING SYSTEM, WHICH TAKES CARE OF 34 BEARINGS

*Courtesy of Bijur Lubricating Corp., Long Island City, N. Y.*



**TEXTILE MILL OF TOMORROW WILL BE LIGHTER, STRONGER, MORE DURABLE, AND MORE COMFORTABLE THROUGH USE OF GLASS BRICK, TILE, SHEET METAL, CONCRETE BLOCKS, TREATED LUMBER, AND OTHER ADVANCES IN MATERIALS AND DESIGN**

**By A. J. Cooper**

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# 5. Building Construction

THE PRIMARY FUNCTIONS of industrial buildings are to protect from the elements, to support the loads imposed upon them, and to provide space suitable for healthful and reasonably comfortable occupancy. From time immemorial structures have been built which performed some or all of these functions satisfactorily. That is to say, they performed them satisfactorily in the sense that horses and carriages provided satisfactory transportation; that the hand loom wove satisfactory cloth; and that the little red school house was a temple of learning.

No other materials being available, the builders of former ages necessarily used those at hand. And down through the ages designers and builders have been following in their footsteps, partly through necessity, partly through tradition. Until the last few years, architects and engineers have been hampered in their design by adherence to traditional materials, as well as conventional designs, copied from their predecessors.

The advancing technology in industry as a whole could not fail to extend itself finally into the building industry. That it did not do so earlier is partly due to the slow "turnover" in buildings. Properly maintained, most structures will last for centuries. Most elements of decay can be indefinitely repelled in a well-designed building by a careful program of maintenance. Moreover the question of obsolescence, cause of replacement of millions in machinery, is not so keen a problem in the structures housing that machinery. Yet the building industry is beginning to partake of the developments of modern science and invention to an unprecedented degree. Not only new ideas in design, but new materials for construction, and greater demands for excellence are beginning to show their signs in almost all new construction of any moment.

One of the principal factors in the changing design of buildings is air conditioning. Its advantages are so generally admitted that it seems to be a question of only a short term of years before a great percentage of industrial plants will have installed equipment for insuring proper temperature, humidity, and cleanliness of the air.

### BETTER INSULATION

Air-conditioning installations call for better insulation of buildings, and render obsolete the old ideas of ventilation by means of windows and roof ventilators. This is one factor in the tremendously increasing popularity of the new glass blocks as a building material. These glass blocks are a hollow unit of glass, made in a variety of sizes, patterns and shapes, and are laid up as masonry units. Being partly evacuated of their inclosed air, they are mildly insulating. They offer the advantages of light, with diffusion to cut down glare; insulation; and the elimination of the air infiltration which generally accompanies windows of the more conventional types.

Air conditioning also accentuates the advantage of roof insulation. It is obviously uneconomical to provide cooling which is being lost through a thin roof deck heated by the summer sun. Roof insulation has almost always saved its cost in the reduction of heat losses in winter, and, when refrigeration losses in summer are added, the use of a liberal thickness of roof insulation becomes imperative. Too little insulation has been used in the past. In the future few buildings will be built without it.

### STRENGTH

Buildings for industrial plants are being designed stronger than formerly. This is due partly to increase in weights and speeds of machinery. The general tendency is always toward higher speeds, resulting in heavier construction for the machinery itself, and more impact and vibration. In the last few years, many old buildings have had to be reinforced, due to the installation of new and heavier machinery. New buildings are being designed with greater strength to take care of this condition. This applies, especially, to textile plants, which are requiring considerably heavier floor construction than formerly proved satisfactory. Another structural feature which receives more attention than formerly is resistance of a building to damage by high winds, tornadoes, and other destructive forces of nature. To that end, the traditional masonry bearing walls are being abandoned in favor of structural steel columns and spandrel beams, with curtain walls of masonry. Use of a riveted steel frame throughout, if properly designed, results in a unified structure, well tied together, much superior to the rather loose-jointed construction used in many old mill buildings. Bearing wall construction was a product of cheap bricklaying labor. Today there is every advantage in cutting down as much as possible the amounts of those materials requiring a large percentage of skilled field labor.

### SANITATION

Another factor which is receiving more attention than formerly in industrial plants, is sanitation. Better toilet facilities are being provided, with modern sanitary fixtures, and tile floors and walls. Locker rooms, with shower baths and dressing rooms, are being

included in many industrial layouts, and, in time, will be demanded in all, especially in the larger towns and cities where workers have to come from a distance. The industrial plant of the future must, of necessity, provide ample facilities for the comfort of the workers, as the living standards of mill employees advance.

### HOUSING

Housing of mill employees, where provided by the industries themselves, has always been a source of expense and trouble to mill owners. Use of cheap materials and poor design has resulted in a rapid deterioration and high maintenance costs. These are being combatted successfully, in the use of conventional wood framing, by better detailing, coupled with the use of

MILL VILLAGE HOUSE CONSTRUCTED OF STEEL SIDING AND WITH STEEL ROOF

materials of more durable character, such as wood which has been given a pressure treatment of preservative. The houses are also being improved in layout, being designed toward a more enlightened living condition. Modern plumbing and lighting are characterizing practically all new construction in the field of industrial housing.

There is a growing tendency on the part of mill executives to experiment with the subsistence homestead idea. The principal scheme which forms the basis of these experiments is the idea of constructing houses on small tracts of land, of one to three acres. These tracts are then sold to the employees on a long-term financing basis. The advantages of these plans appear to be considerable, and they are being made the subject of much profound study. If these experiments are successful, they will put an entirely new face on the subject of mill housing.

### CONSTRUCTION MATERIALS

It will be noted that the improvements previously referred to do not change the fundamental elements of design of buildings, but there are changes under way which are more far-reaching. These are the changes which are developing from new research and new materials. The materials for the buildings of the future are already on the market. Steel framing entered the picture 40 years ago. Sheet-steel wall material is also old, but its development beyond the old "corrugated iron" stage is of more recent date. Walls of steel, well insulated, should be cheaper than masonry walls, and free from many of the disadvantages which frequently are found in masonry. Such walls are less conductive of heat, easier to keep clean, and are water-tight, while masonry walls frequently leak, do not insulate well against heat and cold, and are hard to keep clean. The idea of insulated sheet-steel walls is not experimental. Many companies are now constructing residences and small commercial buildings in which a variation of this type of construction is used. Highly efficient and satisfactory houses are being built, which are more comfortable and which require less maintenance than the conventional types. Paint, of course, is required; but less painting expense is involved than in a wooden house.

### NEW METAL USES

Coupled with the great increases in the use of sheet steel is the development of other metal sheets, such as aluminum, copper, and various alloys. The trend of building designs in the immediate future is certainly toward the extensive use of comparatively thin metal sheets erected on a structural-steel framework, and insulated with a commercial type of insulation.

Another material, the use of which is becoming more widespread, is Portland cement. Especially is this true of pre-cast concrete products, such as blocks and tiles. These materials have the advantage of being practically untouched by decay and other destructive agencies. Monolithic concrete construction, which has attained a high degree of perfection and a widespread acceptance in Western United States, is becoming more generally used. While concrete has some disadvantages for certain types of mills utilizing light machinery, it is eminently suitable for warehouses and many types of manufacturing buildings. If provided with a resilient floor surfacing to make standing less tiresome for the operatives, concrete construction has many points in its favor.

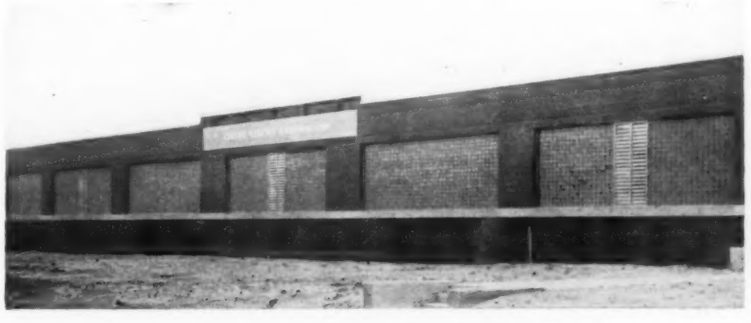
The dwindling of the supply of high-grade structural planking and timbers, together with the devastation caused by insects such as the termite, is resulting in a large increase in the use of lumber treated with various types of preservatives. Almost all plank floor and roof decks which will be exposed to high humidity or other adverse conditions are being made of treated lumber. The same is true of the under-floor framing of mill village cottages.

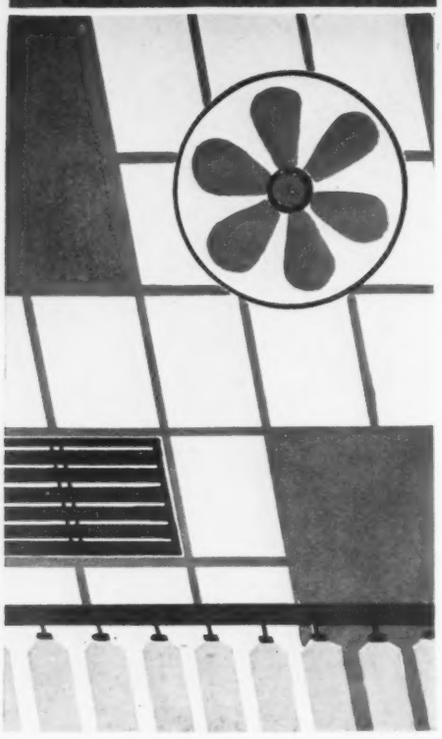
### LOWER MAINTENANCE

The industrial buildings of the very near future will be lighter, stronger, more durable, more comfortable, and will require less maintenance than buildings built along conventional lines. The question of obsolescence is, of course, not so easily disposed of. There may even be some who would argue that buildings for manufacturing need not be constructed on too permanent a basis, due to the rapid obsolescence of the machinery. But this is small argument, since most buildings are sufficiently flexible in layout to permit the installation of newer types of machinery without a great deal of lost space. Buildings seldom become obsolete in the sense that machinery and equipment become obsolete. That is, almost any "obsolete" building can be altered to fit changed conditions at a reasonable expenditure.

There is no compelling reason, therefore, why we should not build for as great a degree of permanence as possible. And when economy, permanence, usefulness, and comfort are considered together, the best answer is found in the newer designs and newer materials.

MODERN MILL CONSTRUCTION USING GLASS BRICK IN WINDOW SPACES (CARTER FABRICS, INC.)





**HEATING, HUMIDIFYING, AND VENTILATING TEXILE MILLS FOR EFFICIENCY AND COMFORT — VARIETY OF EQUIPMENT AND CONTROLS NOW AVAILABLE FOR MAINTAINING ANY DESIRED ROOM TEMPERATURE AND HUMIDITY**

**By A. W. Benoit**
ASSOCIATE,
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# 6. Air Conditioning

In recent years drastic changes have ocurred in the methods and machinery used in textile industry. As a result of many of these changes, buildings and equipment, which were suitable for the old regime, no longer fit, and must be either abandoned, remodeled, or renovated to meet the new conditions. The management in the textile industry, while making its machinery replacements, has become conscious of the inadequacy of its old heating and humidifying systems, has realized the utter lack of ventilation where it is necessary, and is becoming inquisitive as to the possibilities of air conditioning.

### HEATING SYSTEMS

The heating system in a mill of a decade ago was simplicity itself, and within rather wide limits served its purpose. It consisted of either a hot-air system with a central fan and heater, making use of hollow pilasters for ducts, or pipe coils using high- or low-pressure steam. There were also a few hot-water systems in use. All these systems depended on the hand operation of valves for the control of room temperatures, and more often than not the opening and closing of windows was the only control used.

Today there is a wide variety of equipment available to fit any condition. Low-pressure steam is the usual source of heat and can be used in pipe coils, modern-design cast-iron radiators, or extended-surface tubular radiation. Unit heaters, consisting of a small tubular radiator and propeller fan to blow air through it, all mounted in a single case, have been extensively used in the last few years.

The selection of the type of radiation to be used for any specific installation, or the pros and cons of unit heaters as compared to other types of radiation, must be settled on the merits of the case. No general rules can be laid down.

Probably the greatest advance in heating systems has been made in the design of automatic controls. It is obvious that because of the constantly changing temperature during the day, and from day to night, as well as the heat produced by operating machinery, motors, and hot water and steam from processing, there is a wide variation from hour to hour in the amount of steam required to heat a room to a desired temperature. Because of higher production speeds and finer-built machinery, much more constant temperatures are required than are possible with the old systems. Automatic controls of any degree of accuracy are available, of simple design and practical for mill use, and, by the elimination of waste heat due to faulty hand control, they will save their cost in a relatively short time. Quite frequently where existing systems of old types are of good design, the controls can be added and adapted to it.

### HUMIDIFICATION

Another important feature in the equipment of textile plants, particularly cotton mills, is the humidification. This necessity has been recognized for many years, and the early installations were put in use many years ago. They were crude and their operation produced wide variations in the relative humidity of the rooms humidified, but they served their purpose. Controls were added and a great advance step was made; but the equipment still left much to be desired. The manufacturer did not know enough about the effect of humidity upon the quality and cost of his product to realize the handicap under which he was working. A vast amount of experimental work on humidifier heads of all descriptions, endless research and experiment with many types of controls, and a long series of tests in the mills have brought enlightenment and a wide variety of equipment to fit every requirement. There are turbo heads, unit high-duty heads, central plants, small units for isolated spaces, together with controls of various kinds, from which the mill owner can make his selection. This variety of equipment has been developed because of necessity and because the demands for humidification can not all be met by one kind of apparatus. It is essential that careful study be given to each individual problem, and the equipment selected that best fits space limits and humidity requirements.

### USE OF TURBO HEADS

Low story heights usually require the use of turbo heads, liberally spaced and controlled in relatively small groups. The compressor to supply the air for these systems should have ample capacity and be equipped with after-coolers to remove the oil from the air in order that the heads will not be plugged. Large quantities of dust and lint in the air may also interfere with the operation of the heads. To overcome these troubles, automatic self-cleaning turbo heads can now be furnished.

Experience has shown us the advantages to be derived from humidification and what is the best relative humidity for any operation, but it has also taught us that precision and uniformity are impossible without a sufficient number of suitable automatic

controls. In fact, a humidifier system without automatic controls is like a ship without a rudder.

In addition to adding moisture to the air, a humidifying system effects considerable cooling, which in many cases is an added advantage and makes working conditions more comfortable for the operatives. A system of automatic ventilation is now being used in conjunction with humidifiers which permits of closer control of the room temperature and humidity.

### VENTILATION

As a whole, mechanical ventilation in textile plants has not been used to any great extent. In summer the windows are kept open, and during the winter the leakage around windows and doors furnishes the principal supply of "fresh" air. The old hot-air heating systems were quite likely to take their air supply from the basement, and ducts from each room returned the air to the basement. Rooms in which humidity was required were kept closed up tight in so far as it could be done.

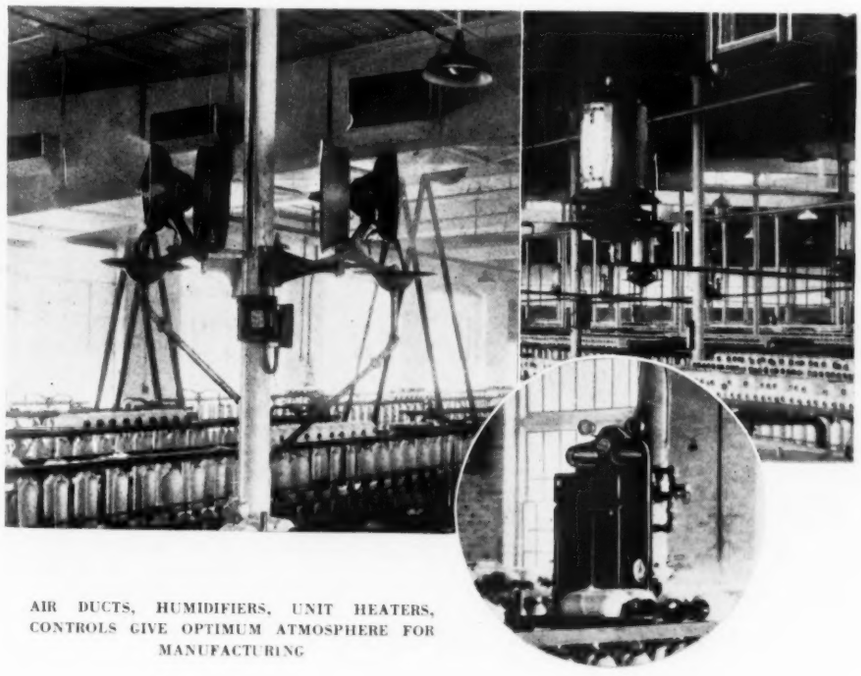
### HEALTH AND COMFORT

As mentioned above, combinations of humidification and ventilation are now in use with considerable success. A good deal of attention is being given to the health and comfort of operatives for humanitarian and economic reasons. A proper supply of clean, fresh air is essential to accomplish this end, and by use of mechanical ventilation and air filters, or washers, the desired results can be obtained. Much progress has been made in this type of equipment in recent years, and there is a wide variety from which to choose. There are large-capacity fans of good mechanical design, high efficiency, and silent operation to fit any requirement, and air filters with many kinds of filtering mediums which will remove practically all dust and lint from the air before returning it to the room. Such systems recirculate the greater part of the air handled and mix a small percentage of fresh air.

The circumstances and conditions which surround each case must determine its desirability and economics, and a careful study should be made by competent parties to insure the installation of a satisfactory working system at a reasonable cost.

There are many isolated operations in textile plants in which dust or heat or excessive humidity is produced, and some form of local ventilation is required to relieve the situation. In some cases, propeller fans installed in window openings are sufficient; in others, collecting systems are required to pick up the dust or heat at the point where it is generated; or a combination of these is used and some type of air supply to replace the air removed by the ventilating fans.

Ventilation of rooms like a dyehouse, in which there are a great many machines producing steam and hot vapor, is best cared for by building hoods over the machines to enclose them as much as possible, and erecting stacks from each hood up through the roof. The air to replace that which goes up the stacks with the steam and vapor is supplied mechanically and heated in winter.



AIR DUCTS, HUMIDIFIERS, UNIT HEATERS, CONTROLS GIVE OPTIMUM ATMOSPHERE FOR MANUFACTURING

### COMPLETE CONDITIONING

Heating, humidifying, and cleaning of air may all be spoken of as conditioning air, and there are many pieces of apparatus which will do any one of these, or even a couple of them, and are offered as air-conditioning equipment. There is evidently much confusion today in the minds of most people as to what is meant by the term "air conditioning." In its broadest and correct sense, air conditioning involves complete control of the temperature and humidity of air, which means the ability to heat, cool, humidify, and de-humidify, all automatically controlled so that any reasonable degree of requirement can be met winter and summer. This is a very rigid requirement to meet, but the equipment is available if needed.

Some operations in the production of rayon fiber require the close control of atmospheric conditions, and "air conditioning" has been in use in these plants for many years. But the usual textile operation does not need as close control as is provided by such apparatus, and its installation and operating costs would be prohibitive. Furthermore, the construction used in most mills is not at all suitable as a building in which to operate such equipment. In order to obtain successful operation at a reasonable cost, the building walls and roof must be well insulated, the windows must be tight, fixed, double sash, and special arrangements must be made at the entrances. The average mill could not be made to fit these conditions except at prohibitive costs.

However, there are occasionally small areas or operations where a refinement of this kind is justified and desirable.

Again, the necessity of making a study of the requirements must be stressed because most of the so-called "standardized" units will not fit the situation, and their use will only result in disappointment.

In the design of a modern mill building, much more attention is given to heating, humidifying, and ventilation than was the case a few years ago, and with the aid of equipment now available conditions can be maintained that make better production methods possible and greatly add to the comfort and efficiency of the operatives.

**AUTOMATIC SPRINKLERS, PORTABLE EXTINGUISHERS, CUT-OFFS, OVERCOME RIVER AND PLANT FIRE BRIGADE ASSIST TEXTILE MANUFACTURER IN GUARDING AGAINST LOSS OR INTERRUPTION OF BUSINESS BY FIRE**

**By P. R. Lowe**
RESIDENT INSPECTOR
ASSOCIATED FACTORY MUTUAL FIRE INSURANCE COS.

# 7. Fire Protection

THE TEXTILE INDUSTRY has been the proving ground for a good deal of the present-day knowledge of fire protection and has benefited both itself and the world at large. To many persons fire protection consists essentially of a pleasant show by a picturesque group of men and apparatus wherein water is squirted at a fire. This may be well enough until one's own property or that in which one is vitally interested is involved, in which case the fire and protection against fire become a personal matter.

A good many years ago it was found that water, applied in sufficient quantity to burning material, cools the material to below its ignition temperature and extinguishes the fire, and fire-protection engineers are constantly seeking means of efficient application of water for such purposes. During the early part of the Nineteenth Century many of our eastern textile mills sought to make water for extinguishing fire more available by providing hose standpipe systems in their buildings, expanding later to pipes buried in the yard and supplying outside hydrants. About 1860 perforated-pipe sprinklers were introduced, consisting of a system of piping near the ceiling and with holes 0.1 in. in diameter drilled at frequent intervals to discharge water towards the ceiling and wet the ceiling and floor to the best advantage.

The greatest development in fire protection is the automatic sprinkler system, which consists of an arrangement of piping conducting water to closed outlets (sprinklers) that automatically release the water when excessive temperatures are attained, and which became practical about 1875. Automatic sprinklers have changed little since about 1900, except for improvements in design or reliability. In heated areas the piping may be filled with water at all times. This arrangement is known as the wet pipe system. Where freezing might occur, the piping may be filled with air under pressure, and the water is held back by an automatic valve until the air is released, when a sprinkler opens. This is the dry-pipe system.

### ALARM SYSTEMS

Various alarm systems and devices to denote operation of the sprinkler system have been developed, ranging from individual local alarms on a single installation to extensive supervisory control of all protected areas, piping, and devices, notifying a central office of any change in the condition of the system.

A modern development of the automatic sprinkler system is the "deluge" system. This system consists of the usual piping arrangements, but with open sprinklers instead of closed ones, and water is admitted to the piping by operation of a quick-opening valve controlled manually or by a system of thermostats, or both. The thermostat system may be a fixed-temperature type operating when the temperature attains or exceeds certain values, or it may be a rate-of-rise type operating when the temperature increases at a rate more rapid than has been deter-

TESTING OUTSIDE FIRE-FIGHTING EQUIPMENT IN THE MILL YARD

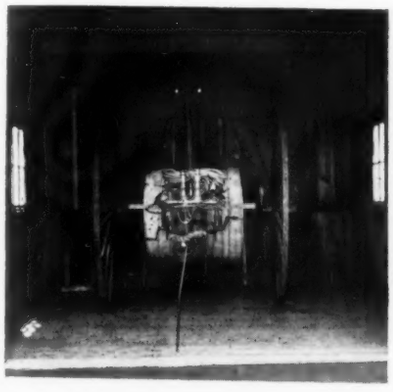
NEWEST DEVELOPMENT IN FIGHTING FIRES IS USE OF WATER IN FORM OF SPRAY OR MIST

mined to be safe. These systems are designed to protect against extreme hazards by wetting down simultaneously an entire area in which a quick spreading or flash fire may originate.

A later refinement of the deluge system is the "pre-action" system, which is similar to the deluge system except that closed instead of open heads are used, water filling the piping system and an alarm being given before the sprinklers fuse. The pre-action system is designed to avoid a certain delay in the discharge of water from the sprinkler, which occurs with a dry-pipe sprinkler system due to the time element from fusing of a sprinkler to operation of the dry-pipe valve and arrival of water to the sprinkler. A still later refinement is a pre-action system in which low air pressure is maintained throughout the piping and thermostat system, so that an alarm may be given in case a sprinkler head operates or the piping or thermostat systems are not intact. Any of these systems can produce most excellent results when properly installed and maintained, but their field of service is sometimes restricted and their installation should usually be sanctioned by the insurance carrier of the owner.

The most recent and current development in fire protection is the use of water in the form of fine spray or mist to extinguish fire. While this water spray is apparently applicable on any type of fire, and some economy in quantity of water needed or in water damage ensuing may result, present development is confined largely to oil fires, on which the water spray seems particularly efficient, but pending results of further research its general use is not advocated.

TYPICAL MILL-YARD HOSE REEL

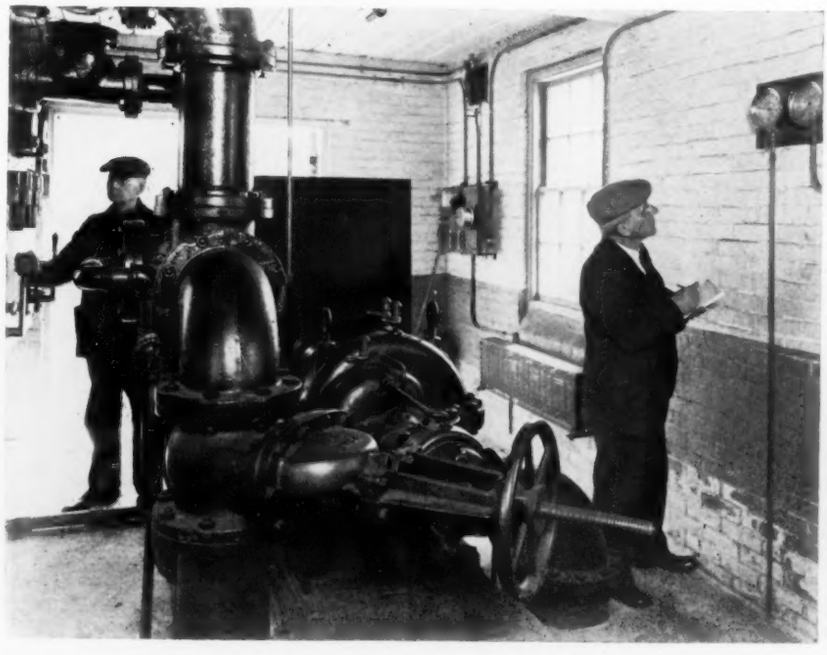


### PORTABLE EXTINGUISHERS

Other developments for extinguishing fire are largely confined to portable extinguishers or special equipment utilizing foam-producing chemicals, carbon tetra-chloride, carbon dioxide gas, and dry powder combinations. Further advances in fire protection, but not means of extinguishing fire, are various forms of combustion safeguards used chiefly with industrial gas or oil burners, and designed to prevent explosions that sometimes occur when such fuels are used.

While automatic sprinklers represent the greatest development in fire protection and are probably of the greatest general value and use, they are entirely useless without an ample supply of water at reasonable pressure. Complete dependence upon public water supplies is not usually wise, and an emergency supply of water from an elevated tank, or from a fire pump and suction supply should be available. Likewise, a plant fire brigade and equipment is usually advisable rather than complete dependence upon public fire departments.

CHECKING FIREPUMP FOR PERFORMANCE



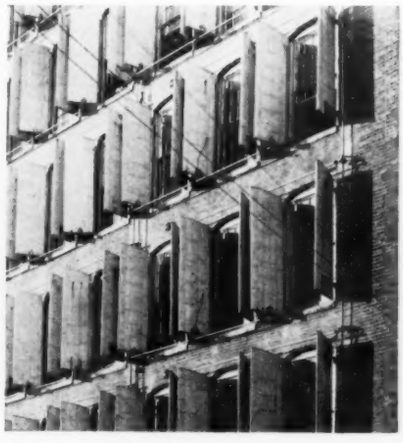
### CUT-OFFS

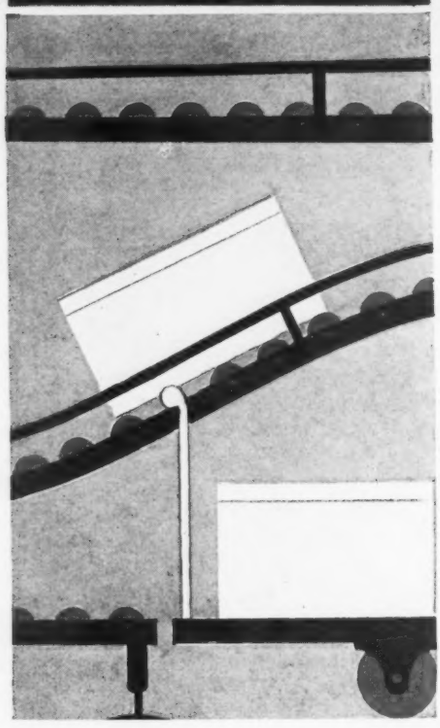
Advances in construction have resulted in the general use of fire-resistive or slow-burning materials and in providing good cut-offs between fire areas. Individual fire areas often are very large, such as the modern weave shed, and maintenance of cut-offs between fire areas becomes more important. Introduction of modern conveyor systems and air conditioning often tends to impair or even nullify cut-offs between fire areas when walls or floors are pierced. No standard arrangement of fire doors or enclosures is usually practicable, and individual study of each case is usually necessary to obtain suitable protection. Further complications arising with modern construction are the use of steel deck and steel bar-joist, various forms of combustible and non-combustible wall boards, glass brick, heat-insulating materials, termite treatments, and numerous other items.

Fire hazards usually change with industrial developments, sometimes increasing and sometimes decreasing; but again individual study is usually necessary to determine the fire hazard, if any, of a new development or change, and to devise suitable manner of protection.

The textile manufacturer is interested naturally in learning the best means by which his business can be guarded against loss or interruption by fire (including by water, lightning, windstorm, explosion, and other usual causes of loss); and in matters of fire-protection engineering he should not hesitate to seek advice from his insurance carriers.

METAL SHUTTERS GUARD AGAINST FIRE FROM OUTSIDE





IMPROVED DEVICES ADOPTED ON BASIS OF INCREASING PRODUCTIVITY OF EMPLOYEE — MANY TYPES OF CONVEYORS, TRUCKS, ELEVATORS, ETC.

# 8. Intra-Plant Transportation

EFFICIENT HANDLING of goods between processes in a textile mill goes far toward setting the efficiency of that particular mill. A recent conveyor installation in a New England worsted mill does, without added man power, the work of two elevators and many trucks with their several attendants and truckers. Goods in process must be moved in quantity and condition to avoid any cessation in machine operation, and the empty containers must be brought back to their starting point.

Developments in the field of intra-plant transportation have been gradual. Improvements in structural materials, and greater ingenuity in applications are the modern keynotes. A completely mechanized mill, while ideal, can be reached only to the extent that the cost of the mechanical helps can be met by the increased productivity of the employee.

Containers for stock in process are common to nearly all systems. These include baskets, bags, boxes, cans, cartons, cases, buckets, hampers, racks, barrels. They may be made of canvas, fiber, metal, wire, wood, each with suitable reinforcements if needed. Coordinated with these items are appliances for moving them horizontally or vertically, or in both directions.

For horizontal movement there are various sorts of conveyors, such as apron, belt, chain-belt, overhead rail, pneumatic; and various sorts of trucks such as barrel, beam-and-warp, bobbin, conditioning, dyehouse, electric, trailer, hand, two-wheel, four-wheel, etc. For vertical movement there are elevators, hoists and chutes. For both horizontal and vertical movement there are suitable types of conveyors and lift-trucks or tiering machines. A new type truck gives floor-to-floor lift for mills where trap doors are provided, the truck being equipped with an opening device for the trap door.

### CONTAINERS MUST GUARD CONTENTS

The containers are for the most part soft (as canvas) or smooth (as varnished wood) in order not to catch or damage the material in transit. They are made of fiber or of the newer forms of non-corrosive metal, if subjected to moisture (as in a conditioning chamber) or chemical action (as in a dyehouse). They may be reinforced by wood or metal or both, though it has been recommended of late for boxes to be used on conveyors that they have no protruding ridges nor applied metal straps.

For trucks, both rigid and swivel casters are supplied and it is the modern trend to devise the bearing to hold adequate lubricant for long period of use, retaining it without loss to avoid soiling the floors. The casters may be iron rimmed or rubber tired. The latter, which are constantly finding wider acceptance, offer minimum wear on floors, quieter operation, and less applied force to move them.

Dollies are used in some plants to facilitate handling boxes. Skid platforms may be used with suitable rolling device on which they may be elevated and moved about. The two methods just mentioned economize on rolling appliances and permit the loads, when left, to stand squarely on the floor without chance of accidental or unauthorized moving.

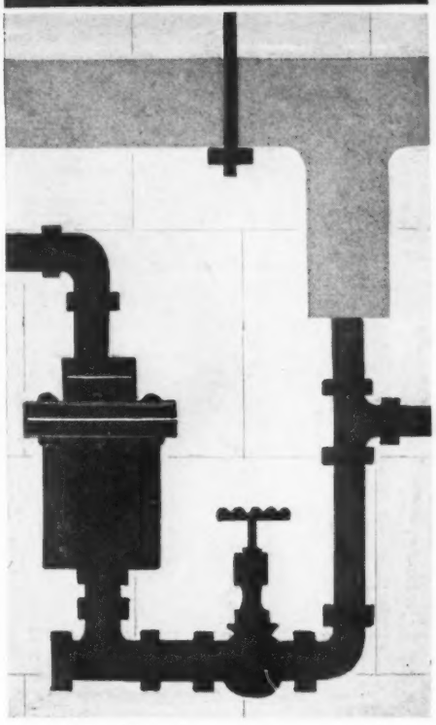
### FOR HEAVIER LOADS

Electric trucks find use in the industry in moving heavy materials for longer distances (as between buildings), to draw groups of trailer trucks, or for moving materials about the mill yard.

Overhead rails, with trolleys and hoists, are frequently found where heavy loads are carried over definite routes, such as beams from warper to slasher to loom, or large unit loads in dyehouse from wet processing to extractor to dryer. The hoists may be electric or hand, and their rated capacities usually run from ¼ to 2 tons. A ratchet lever hoist runs up to 6-ton capacity. These systems facilitate handling, save floor and storage space. Materials carried are protected against many causes of soiling to which they are subject when carried at floor level.

Conveyor systems are useful in multi-story buildings, with gravity for downward movement and chain belt for the upward. Side-tracks are provided for storage, and the more modern systems are usually designed so that a box once started will find empty storage space or else return to its starting place. In other recent installations push-button stops are provided for use in event that materials are coming in too fast. For transfer of raw stock from opening to further processing, blower systems are often used.

For movement from floor to floor, one or more elevators are standard in most mills, excepting of course those plants built on one floor where the only movement is horizontal. Modern practice favors high-speed elevators with simple controls. Reliability is a prime requisite, particularly in smaller plants with only one elevator where a shut-down might cost more in losses than the elevator itself. Current textile trend is toward a small elevator, run electrically, which may be operated either by an attendant or by button system when attendant is not on duty.



# 9. Piping & Accessories

**USE OF CORROSION-RESISTING MATERIALS AND OTHER ADVANCES IN DESIGN REDUCE INSTALLATION AND MAINTENANCE COSTS OF PIPES, VALVES, TRAPS, PUMPS, AND HEAT EXCHANGERS**

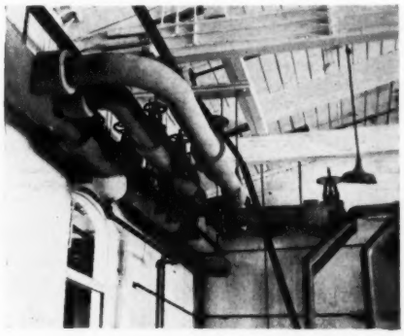
By H. H. Iler

PROGRESS IN THE FIELD of piping has kept pace with improvements and developments of textile machinery and equipment. The piping system in a textile mill protects against the ravages of fire, contributes to the efficient and economical distribution of various necessary commodities, and plays an important part in enabling many machines to function. One marked trend in pipe manufacture is toward the production of pipe and fittings of corrosion-resisting materials, as well as to design the product so that installation will be simplified. This tends to increase the life, decrease the maintenance expense, and lower the installation cost.

An example of the more recent developments is the asbestos-cement pipe being offered for underground mains. This pipe is made by a process which insures a homogeneous product of high density and strength. Being light in weight for its size, it can be handled easily, and installation costs are probably lower than for the customary types. Generation of steam at high pressures and temperatures has called for the use of piping of heavier wall thickness and made from high-carbon steels, carbon-molybdenum steels, and various alloys which do not have so great a tendency to "creep" or to lose strength under conditions of extreme heat.

Another development is seen in threadless pipe and fittings where the joints are made by having inserted in a groove, inside each fitting opening, a ring of brazing alloy which can be caused to bond the members together by use of an oxy-acetylene flame after insertion of the pipe. This type of pipe is available in non-ferrous metal, such as bronze and copper. It will doubtless find favor in such applications as size-circulating systems in slashers where there may be many turns to be made in close places. Having a smooth inside surface, it is less likely to clog than the conventional threaded pipe and fittings.

One noteworthy accomplishment of piping manufacturers is in the production of fittings, accessories, and pipe from the alloys and metals that are capable of safely and dependably handling corrosive chemicals used in processing operations, such as dyeing, mercerizing, bleaching, printing, ageing, conditioning, etc.



Welded piping systems have certain advantages over the old screwed-together type and, in the larger sizes, have been found to be cheaper and more adaptable for installations where space is limited. Insulation is easier to apply because of absence of flanges and other fittings.

The value of insulation of pipe lines carrying steam and hot liquids hardly needs comment, as economic necessity long ago has shown this method of saving in the mill to be worth while. Some new materials are being used for insulation work today which add strength and durability to the generally accepted methods, and consequently lower the cost of maintenance.

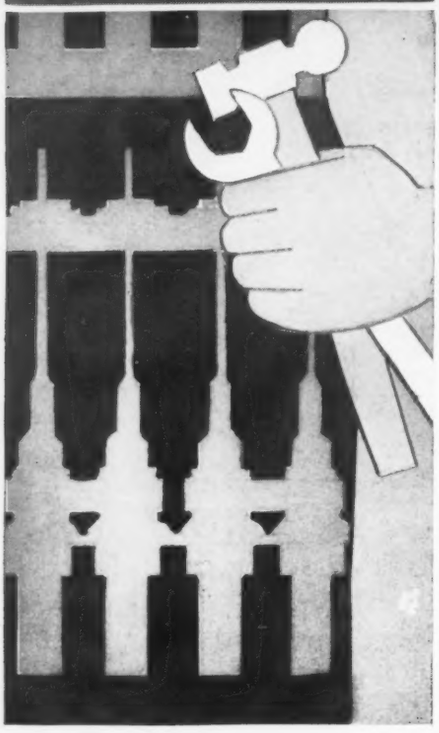
In valves, as well as in pipe and fittings, the trend is toward a product of added strength and sturdiness. Many new ideas have found useful application and have won approval. The disk and seat of one of the newer type globe valves are so durable and of such strength that a nail can be flattened between them without damaging either member. This resistance is especially desirable in valves that must operate in a partly throttled condition, as the wire-drawing action of steam under these conditions is a serious cause of damage. Globe valves of forged steel are also being offered with the advantage of safety against fire, as well as ability to withstand the high pressures of the modern steam plant. Valve bodies in small sizes for high pressures are being machined from solid steel bars.

A reducing valve designed so that the steam, water, or gas passes through in a straight line is being made in stream-lined pattern. Other valves, such as lubricated plug valves for chemicals and diaphragm valves designed for accurate, uniform flow, are available for special application.

In steam-trap design, the inverted-bucket type is proving popular and valuable. This trap can be obtained with stainless steel interior when desired. Thermostatic traps are available for service in connection with certain machines where required. A late trap development utilizes the principle of flow between two orifices for valve control, producing an impulse.

Many advances have occurred in pump design, and practically any textile mill pumping problem can now be solved by careful selection of the proper type of equipment.

A recent development in heat exchangers for recovering waste heat from dyehouse liquors, etc., is the use of corrosion-resisting materials.



APPLICABLE ESPECIALLY TO PLANTS EMPLOYING 3000 OR MORE PERSONS BUT CONTAINING MANY FEATURES OF INTEREST TO SMALLER PLANTS AS WELL

By Stephen C. Hale

# 10. Maintenance Methods

THE MAINTENANCE department of a textile manufacturing plant should be so organized that the maintenance and engineering needs will be served promptly and economically. The size and character of the plant will determine to a large extent the size and character of the maintenance facilities.

### THE CHIEF ENGINEER

In larger plants the executive in charge of maintenance often bears the title Chief Engineer, and is charged with executive control of functions broader than are usually implied in the words "Maintenance Department." This occurs logically because it thus becomes possible for management to afford an executive equipped with native ability which has been developed by technical education and wide experience to handle smoothly and expertly the many duties and responsibilities entrusted to him.

Power—hydraulic, steam and electric, its generation and purchase, together with its distribution—is an important item. Periodically it is necessary to overhaul and substitute modern equipment in order that power costs may be kept down to competitive levels. The planning of such an operation and the purchasing and installation of the new equipment are usually done under pressure and must be accomplished without interfering with production schedules. An up-to-date steam-turbo unit has a water rate of about 10½ lb. of steam per kilowatt hour, and may well, therefore, displace similar units purchased 15 years ago, which had, when new, a water rate of about 16 lb. Modern development in metals highly resistant to high temperatures and pressures has made this improvement possible. Boilers, superheaters, fuel-handling devices, valves, meters, etc., are equally reliable and play their respective parts in the programs.

Plant betterment programs occupy a great deal of the time and energy of the plant organization as a whole. Many of the technical details are worked out in the maintenance department, where additional responsibilities are sometimes placed in the planning, budgeting, and expenditure control necessary to the carrying out of this activity. In a fairly large plant, an annual expenditure of from $250,000 to $500,000 may be the rule rather than the exception. While the amount spent from year to year varies greatly, a continuous and uninterrupted planning for such modernization is necessary to keep the plant in a favorable competitive position in the industry.

### DOING THE UNUSUAL

Plant protection is sometimes thought of in terms of sprinkler systems, fire drills, and plant watchmen. It is interesting to note, however, how quickly the conception broadens when a sudden crisis develops and the plant shuts down. Perhaps the whole maintenance organization from top to bottom will be charged with important responsibilities in protecting mill property from various types of damage incident to such shut-downs. One reason for calling on the maintenance organization in such a contingency may be that the personnel has been accustomed to serving the various departments in the plant and is thus qualified through particular abilities and close-knit organization to do the required, even though it may be unusual.

General stores is an activity usually assigned to the maintenance organization, which may vary in a small and simple plant from supply bins serving the mechanical and other maintenance shops to a stores organization in a larger plant, which not only has the supply bins for the shops, but also includes extensive machine-parts stores and even warehouses and supply rooms containing important mill supplies, such as dyes and other finishing-plant materials and also spools, bobbins, shuttles, and similar materials.

Public utilities serving mill employees and others in smaller towns have in years gone by been necessary developments of manufacturing where management has located outside of cities. In many plants the operation of such services is still carried on by the manufacturers, and the responsibility for this service is more often than not in the hands of the maintenance department. Such services may include water supply and distribution, sewers and disposal plants, also fire protection and other prerequisites usual to a modern community of from 8 to 12 thousand persons.

### MACHINE SHOP

The machine shop may be considered the heart of the plant maintenance organization. There is usually a machine-shop foreman, responsible to the master mechanic, who supervises the work done in this shop. Included under the machine-shop organization are the pipers, welders, belt men, blacksmiths, and other specialists with their respective equipment and tools. The effectiveness of these shops is greatly influenced by the equipment and tools with which they have to work. In many shops the line of equipment is kept modern, and the variety of machines is such that a complete and complicated machine may be machined and assembled as a complete unit within the shop from the castings and materials usually secured from the outside. A shop developed to this extent will naturally be able to perform

the maintenance work incidental to manufacturing machinery with a high degree of skill and promptness.

The wood-working shop may well include the machinery and carpenters usual to the maintenance of factory and mill-village buildings, as well as the maintenance of the wood-work incident to some textile machinery. One or more pattern makers may be used to advantage. Included in this shop is the millwright headquarters. It is customary for millwrights to erect machinery and maintain line shafting, machinery foundations and similar heavy work.

Centralization of maintenance functions in the maintenance department and centralization of maintenance shops at one point have been trends of recent years. Experience has demonstrated the wisdom of this policy. Maintenance costs have been greatly reduced through a reduction in the number of employees and through better utilization of the efforts of those retained. The centralization of shop facilities automatically eliminates duplication of effort and permits the use of ideas developed in one part of the organization in other parts where the need is equally great. Standardization results, therefore, in the elimination of supplies and machine parts having slightly different specifications.

Construction work, in which is included major building alterations, such as reinforcement of building foundations, columns, or floors, the erection of additions, or the structural changes and manual labor incident to moving machinery, or placing new machinery into buildings, is best and most economically performed by a general contractor working in close cooperation with the maintenance force. Such a policy aids greatly in the stabilization of the maintenance organization, since the personnel of the maintenance department, both supervisors and workmen, may thus be maintained at the correct number necessary for strictly plant maintenance.

Maintenance supplies should be purchased from the outside except in particular cases where they can be made cheaper in the shops. There are many machine parts which, when broken, can be welded and otherwise rebuilt into satisfactory replacement parts. It is necessary to control such work by the setting up of simple standards through which the shop foreman can readily determine whether it would be more economical to scrap the part or repair it. It is good practice to control maintenance operations by insisting that the work performed cost less than if bought outside.

### MACHINERY DEVELOPMENT

Machinery development is important in all plants, but the necessity for it varies in proportion to the technical difficulties which must be overcome in manufacturing and finishing the goods made. Continual development of machinery and processes is particularly necessary and extensive in textile bleaching, finishing, and printing. In the printing of dress goods, the preparation of designs, the translation of these designs to printing-machine rollers, and the actual printing, with the operations that lead up to it and follow it, constitute a fertile field for machine and engineering research. In any plant carrying on operations of this type a highly developed machine-shop organization is very essential.

The working force for carrying on the activities outlined must be carefully selected and maintained. The personnel usually grows up as the plant expands over the years. It requires constant attention and initiative, however, to maintain an adequate organization at high efficiency. A high morale in the force is an ideal to be strived for continuously, and its maintenance will do more toward the successful operation of a maintenance department than any other one thing. In times of depression it is customary to reduce forces to a point where those left are the skilled mechanics at the top of the wage scale. It is essential, therefore, to effect a better balance as soon as possible by the infusion of younger workmen into the organization. Apprentice training is an effective tool in the development of future mechanics. Through this device, the enthusiasm and satisfactory progress of these young men will be assured.

In all the various subdivisions of the work discussed it is of course the responsibility of the chief engineer to maintain a high standard in personnel, plant, and equipment.

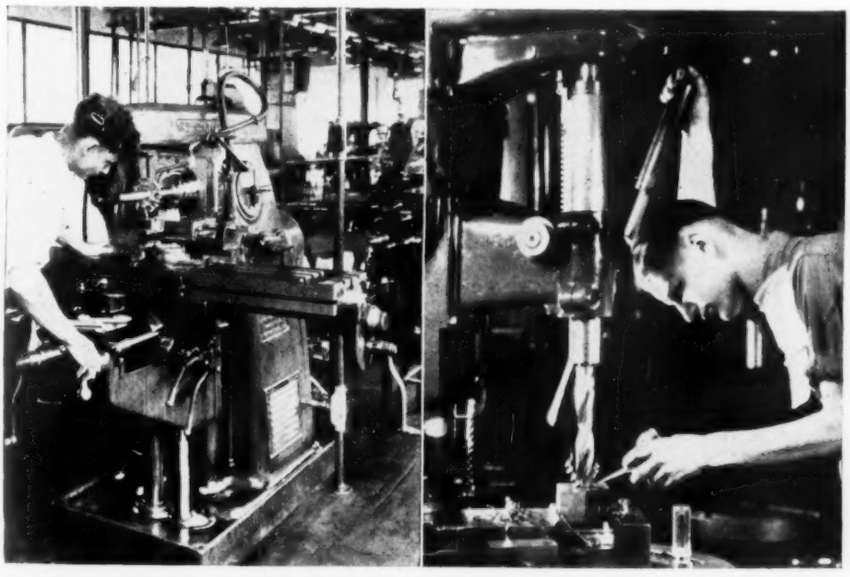
It is true that management pours a lot of money into maintenance operations and that requests for appropriations for this or that development are made frequently. However, maintenance can aid greatly in the operation of any plant, and often does to a marked degree. Unfortunately the maintenance part of plant operation has suffered in some plants through the failure of management to give it the same earnest and intelligent thoughtfulness and support that it gives to strictly production matters.

A "temporary" boiler plant may have been built a dozen years ago and still be in operation. Such a plant would be inefficient in operation through its cheap construction and hand firing, perhaps. During the dozen years, improvements in steam-generating practices will have occurred whereby other existing boiler units could be made through the substitution of another fuel or better methods to absorb the load of the "temporary" plant. This might involve installation of a connecting steam main and some other adjustments. The saving in labor and other costs might easily pay back the investment in less than a year and insure more economical operation for an indefinite period.

This actually happened within the experience of the writer, whereby an expenditure of $35,000 was repaid in less than nine months.

In another case a large plant effected a saving of $11,000 per year through the reorganization and centralization of stores of various kinds.

MODERNIZATION OF TEXTILE PLANTS SHOULD INCLUDE LATEST EQUIPMENT FOR THE MACHINE SHOP



TREND IN TEXTILE MILLS IS TO ESTABLISH DEFINITE CLEANING SCHEDULE FOR EACH DEPARTMENT — THEN USE TRAINED PERSONNEL AND MODERN MECHANICAL AIDS

# 11. Cleaning Services

IT IS BECOMING more apparent from year to year that cleanliness in modern textile mills is synonymous with efficiency. Machinery must be inspected and cleaned regularly if it is to remain in good-running order, and it often falls to the engineer's lot to work out such inspection and cleaning programs. Each mill obviously is an individual case, and the first thing the engineer should do is make a study of cleaning requirements. For example, Alfred Heaton, consulting textile engineer, recommends a plan for the systematic cleaning of worsted spinning frames as follows: "Monday—wipe leather front rolls with damp cloth; brush out separator tins at doff. Tuesday—clean all waste from bottom and top front rolls. Wednesday—clean all waste from carriers and joints. Thursday—clean all back rolls and brush out rolling creels. Friday—brush out tape hangers and clean all rails and frame ends with cloth."

A similar cleaning system could be easily worked out for other machines and other departments, as well as for other branches of the industry.

After the cleaning schedule is developed, the engineer must get together with the superintendent and decide who is to do the cleaning. In some mills machinery is cleaned by the regular operatives, but in the larger plants the present trend is toward use of specialized groups of cleaners operating on a regular schedule. These specialists are more likely to notice worn parts, stuffed oil holes, and other things needing attention.

### BUILDING AND AUXILIARY EQUIPMENT

Probably one of the most important jobs of the engineer is to see that at least once a year the entire plant receives a thorough inspection, followed by cleaning and repairs where necessary. This might take the form of a "Spring House Cleaning" program. Parts of the building which ordinarily are neglected by the regular sweepers and cleaners include revolving roof ventilators, building eaves, roofs, louvres, underfloor ventilators, monitor windows, gutters, drain conductors, radiators and coils, outdoor electric-transmission and distribution lines, transformers, tractors, road machinery, outside tools, yards, flower beds, etc. Village houses, plumbing, and chimneys should also be inspected, cleaned, and repaired at least once a year.

There are on the market a number of helpful cleaning devices for general industrial use, which are applicable to textile mills. One of the best is a floor scrubber with a revolving brush which cleans and dries the floor at a high rate of speed. For walls, windows, floors, and certain types of machinery, there is a high-pressure chemical vapor spray. Chemical aids include many soaps, solvents, and abrasives which make cleaning much easier than in the past.

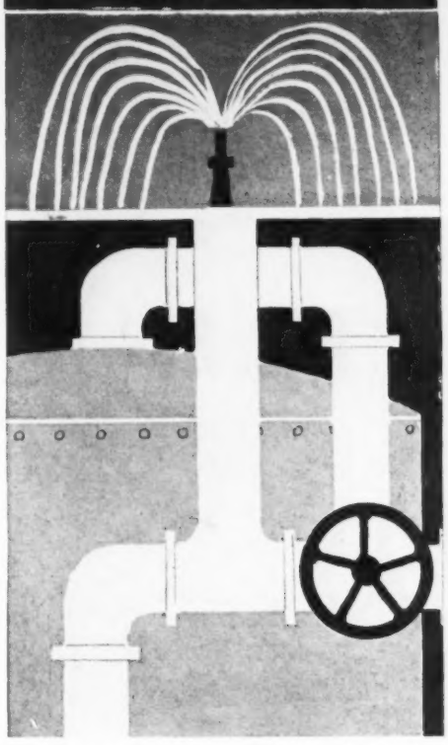
### MECHANICAL CLEANING AIDS

An important contribution to cleanliness in textile mills has been the development in recent years of a number of automatic cleaning systems. Most of these are based on the blower or vacuum principle, and several are designed to travel at a predetermined speed over or near the machine being cleaned. Traveling cleaners in general are self-propelled along a track above the frame by means of a small motor. Volume of air can be regulated so as to prevent damage to roving or yarn. One type creates two currents of air, one on each side of the frame, so that all surfaces above the ring rail are thoroughly cleaned. In addition to those cleaners operating on tracks, there are a number of portable blowers on the market which can be quickly wheeled from one part of the plant to another. One of these is said to be capable of creating a blast (or a vacuum) of 275 m.p.h., and is equipped with an attachment for spraying paint or other compounds. Portable vacuum card strippers are used frequently.

Several manufacturers are offering cleaning devices specifically designed to clear up especially bad spots in the mill. One of these is a vacuum lint-and-dust collector for use with automatic spoolers in the cotton mill. It consists essentially of an arrangement of baffles and hoppers located at strategic points to catch lint, dust, and fly, produced by yarn beating against the sides of the bobbin container and by passing through the comb.

### USE OF AIR HOSE

Finally, the old-fashioned air hose, in instances with modern variations, should not be forgotten as a very effective device for cleaning almost every machine commonly used in the manufacture of textiles. It is extremely handy for blowing out crevices which the mechanical cleaner finds impossible to reach. However, there is considerable difference of opinion among mill men as to the advisability of using air in certain departments, such as weaving, due to the possibility of blowing oil or trash into the work. Some mills place screens around looms being blown off so that colors will not be mixed. Mills reporting successful use of air in weave rooms usually train blow-off men to keep the nozzle away from oily bearings and pointed downward at all times. Fly and dust blown to the floor by mechanical cleaners or by the air hose is usually swept out or collected by means of some type of vacuum arrangement.



# 12. Water Treatment

**IMPROVED METHODS AND EQUIPMENT FOR TREATING PROCESS AND BOILER FEED WATER TO MEET TODAY'S STRINGENT REQUIREMENTS —AND A WORD ON THE DISPOSAL OF WASTE LIQUORS**

OF ALL THE RAW materials used by the textile industry, water is employed in the greatest quantities. And it can be the most expensive. Thus, one authority has estimated that 60% of the returns encountered in bleaching, dyeing, and finishing plants are due, directly or indirectly, to the use of raw water or water which has not been treated properly. Yet until comparatively recent years many textile executives have given far too little thought to this raw material which is so important to them and which they use in so large a volume. This fortunately is no longer true. Today many mills are coming to the realization that they cannot continue to use raw water for process work if they are to compete favorably with the more progressive companies which have already installed water purification plants and hence are able to make a superior product and at a lower cost.

An outstanding example of this trend toward the installation of water purification equipment was the decision about a year ago of the American Woolen Co. to treat the entire 28,000,000 gal. of water used daily in dyeing and finishing the fabrics produced by the Wood Worsted Mills. For years this mill had drawn water from the Merrimac River and—except for a small amount which was filtered for special work—had used this water without subjecting it to filtration. Installation, early this year, of purification equipment of sufficient capacity to treat all of the water used in the mill has given gratifying results.

While a copious supply of reasonably pure, soft water has always been the first requisite of a finishing plant, with the demand for higher and higher quality in finished textiles, this requirement has become more and more stringent. Consequently, some companies have found that purification and softening equipment installed ten or twelve years ago, say, is no longer adequate, and have supplemented and modernized their original systems by the addition of up-to-date equipment.

### Recent Improvements

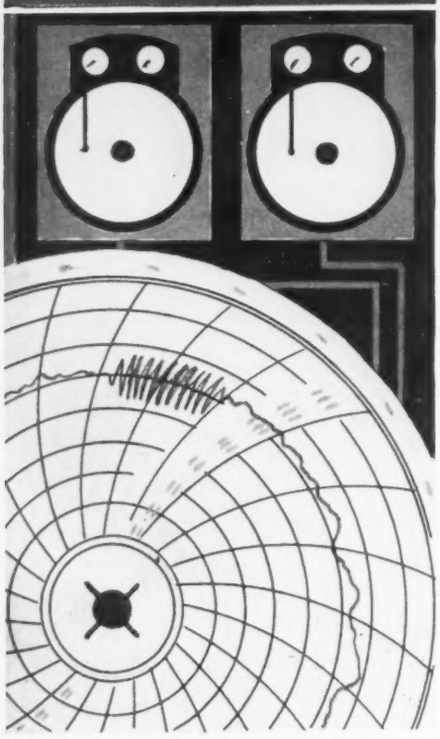
Although there have been no fundamental changes in water-treatment technique for several years, there have been many improvements in purification and softening equipment. Among these are included electro-chemical feeding of chemicals, hydraulically operated valves, improved mechanical flocculators, more scientifically designed baffle systems, conveniently arranged operating tables, and completely automatic softeners of the high-exchange zeolite type with gravel-retaining screen. Filtration equipment, particularly of the gravity type, is receiving careful attention, and in the rayon industry the trend is to equip such filters with non-ferrous parts throughout in order to minimize the possibility of iron pick-up through contact of the water with parts of the filter itself.

Pre-chlorination and pre-ammoniation are coming into more general use for the removal of iron and for preventing the growth of algae and bacteria in cold water systems. Treatment with copper sulphate also has been found effective for eliminating algae from water which is not to be used for drinking purposes. Use of activated-carbon filters has proved successful in removing objectionable odors from process water.

In the past textile mills have not been inclined to take seriously the matter of boiler feed water treatment. Recently, however, a number of plants having low- and moderate-pressure boilers have installed external feed water treatment units, mostly of the zeolite type. As in other industries, the trend today in the textile industry is to install boilers operating at pressures as high as 750 lb. With these high pressures, the feed water must be of high purity, and in most instances treatment becomes essential. To give the type of water which is suitable for the boiler pressure and other operating conditions, softening by means of zeolite, lime-soda, or other softening methods frequently must be supplemented by aeration and treatments with acid, sodium sulphite, or other chemicals.

### Waste Disposal

Another problem which has not received too much attention in the past is that of waste disposal. Today individual mills here and there find it necessary to purify part or all of their wastes, but many discharge them directly into a stream or sewer without treatment. Anticipating that other mills will be forced to treat their dyehouse and other wastes, the Textile Foundation has sponsored the installation of experimental plants to determine the best methods of treatment and has issued preliminary reports of the results of this work. Clarification equipment has undergone considerable improvement in recent years, the more modern form of clarifier being of the traction type and equipped with surface skimmers to remove any scum that comes to the surface. The subject of waste disposal is one which is bound to be of increasing importance in the next few years, and the textile engineer who at present has no active interest in the subject should make it a point to keep abreast of the developments in methods and equipment which are suitable for use in various branches of the industry.



**TEXTILE INDUSTRY BECOMES INSTRUMENT-MINDED. MAJOR TRENDS: BUILT-IN CONTROLS, COMPLETELY AUTOMATIC REGULATION OF PROCESSES, ESTABLISHMENT OF SEPARATE INSTRUMENT DEPARTMENTS**

# 13. Control Instruments

FOR A LONG TIME leading textile mills have been benefiting from the use of control instruments of one kind or another. But it is only within the last three or four years that textile men have become really instrument-minded. Today, however, the textile industry as a whole is completely "sold" on instrumentation as a means for increasing production, improving quality, and lowering costs. And that without doubt is the most important development which has occurred recently in the realm of condition-controlling in the mill and in the power plant.

Instrument manufacturers have, of course, made many improvements in various types of control equipment and have brought out a number of entirely new types of controllers. As a result, instruments are now available for indicating and controlling practically every condition encountered in the manufacture and finishing of textiles. An article, "Precision Through Control Instruments," which appeared in the Feb. 28, 1937 issue of TEXTILE WORLD, listed over 30 different types of control equipment that are now being used in various branches of the textile industry. Other articles have cited the advantages which have resulted directly from the installation of control instruments in specific mills and on specific types of machines. Rather than to go over this ground again or to repeat the descriptions of control equipment which have appeared of late in our New Machinery pages or which can be found in the catalogs put out by the instrument manufacturers, the present discussion will be confined to a consideration of three major trends in the instrumented control of textile operations.

The first trend to be noted is that not only the textile man, but the textile machinery builder as well, has come to a realization of the value, and even the necessity, of accurate control of many textile processes. They know that the mill cannot get the most benefit out of some of the modern, high-speed machines now being offered unless those machines are operated under strict control. The result is that the machinery manufacturers now furnish those machines completely equipped with automatic controls.

Formerly control equipment on new machines was optional; but now the machine builders are tending more and more to incorporate the control apparatus as an integral part of the machine. Thus a new high-speed slasher described in our October issue has built into it a system for controlling the time and temperature of the cooking, temperature of the size in the storage kettle, temperature and liquid level in size box, and temperature of individual drying cylinders.

The second trend is that toward completely automatic control of various operations—particularly those involving the wet processing of textiles. The textile man is rapidly learning that in many cases the sticking of a recording thermometer on a machine is not enough. Instead, he is finding it advantageous first to determine just what conditions govern a specific process and then to install instruments which permit all of those conditions to be coordinated and controlled with the least possibility of human error. One of the simplest and oldest forms of coordinated control equipment which has found favor in the textile industry is the automatic time-temperature cycle controller. For such processes as require more complete regulation there is a decided trend at present toward the installation of systems whereby such factors as operation of valves, pumps, etc., and temperature, pressure, humidity, liquid level, speeds, and other variables are coordinated and controlled automatically according to a predetermined schedule. While complete automatic control is advantageous for many of the standard textile operations, it is almost essential in the application of some of the newer chemical finishes.

### INSTRUMENT DEPARTMENT

The third and last trend to be considered is one which is already apparent in other large industries, but is just beginning in the textile industry. This is the establishment in larger plants of a separate department with full authority and responsibility for the specification, installation, and servicing of all instruments; in smaller plants, the delegation of these responsibilities and duties to some one member of the mechanical department. In many of the large plants in the paper industry and in the rubber industry, one will find trained instrument engineers—men who have familiarized themselves with the design, construction, and application of control equipment by study of the literature on the subject and by actual training made possible through the cooperation of the instrument manufacturers.

With the increased use of control equipment in their mills, textile executives are going to insist on the largest possible return on the investment. It is expected, therefore, that in order to get the greatest good out of their control equipment many textile companies will adopt the policy of establishing separate instrument departments compatible with the size of the plant and the number of instruments installed.

Textile World
November, 1937

*Editor:* DOUGLAS G. WOOLF

# *The Passing Show In Textiles*

THE other day we played a sort of solitaire. We jotted down on slips of paper all the current developments we could recall which are interesting, worrying, thrilling, or frightening textile manufacturers. We shuffled these slips —and then read them rapidly to ourself. Our reactions ran all the way from a bad spell of dizziness to a slight touch of insanity.

Not wishing to expose our readers to any such possible effects, we have classified them rather loosely—and are parading them in a somewhat more orderly fashion.

## WASHINGTON

PARTLY because it is the style, partly because it is justified, and partly because we have just returned from Washington, we give that city first place in the parade.

A new session is just about to start. . . . Some sort of a Federal wage-hour law seems almost a certainty at either the special session or early in the regular session. . . . A new processing tax is very apt to be attempted as a means of defraying the cost of crop control. This however is much less of a near-certainty than is wage-hour legislation. . . . Despite Presidential denials, we honestly believe there is an excellent chance of getting some important revision in the undistributed profits tax—particularly in the direction of exempting money spent for modernization and expansion programs. This will take place, if at all, during the regular, not the special, session.

Any reader who sees a newspaper occasionally will realize that we have just skimmed the cream off Washington events. We selected only those which have a major bearing on textiles. We could go on almost forever—but we shan't.

What does this Washington section of the textile parade mean to the industry? There is nothing original about that question; if all the editorials entitled "Government and Business" or "Business and Government" written during the last four years were placed end to end they would prove that a million editors must be nuts.

There is something slightly original about our answer, however. We think the early convening of Congress will be good, rather than bad, for business this time. . . . We pause for the bricks, because we realize that every man learned at cradle age to say: "Hurray, Congress has gone home"—or, vice-versa, "Damn it, Congress convenes next week." The mother-in-law joke is brand new compared with this one.

Our reason for breaking with precedent this year is that Congress will immediately start playing around with two measures—wage-hour regulation and crop control—each of which, if enacted, means increased costs and therefore higher prices. That, in turn, probably means some more speculative buying, just as happened prior to NRA enactment, and during the last session when the Black-Connery bill seemed likely to go through.

Ordinarily, it would be our duty to "view with alarm" such a thing as speculative buying, but right now we think maybe it's the sort of a shot in the arm which poor sick business needs.

Two more reasons why we don't think Congress is so bad for us this year: First, we want to see the uncertainty removed from these major legislative zones as rapidly as possible. Second, we want to see changes made in the undistributed profits tax provisions as soon as possible—and the special session will get some other jobs out of the way and hasten consideration of revision of the revenue act.

So, more power to Congress.

## OUTLOOK

"OUTLOOK" is a broad term we use at our desk as a sort of pigeon-hole to include events and trends directly influencing the bus-

iness picture. We found dozens of slips of paper in this group, after our game of solitaire. However two of them are outstandingly important at the moment, and so we shall skip the others. These two are: the stock-market gyrations and the commodity-price jitters.

Nobody can cheer for these events, except those who have made some money on the short side. However, since they came to us, and we have to take them, we might as well try to like them. They are not without their good traits. For instance, coming at this time—prematurely, as many believe—these declines may possibly have forestalled a more serious collapse some time in the future.

Isolating one of the specific parts of the commodity-price situation—the position in cotton—we think it safe to say that cotton goods are dirt cheap right now, as compared with the general market structure. By that, we don't mean that there is no chance for lower prices; we are getting too old to make brave, youthful predictions of that sort. But certainly cotton has taken a lot of liquidation; once a firm "bottom" is found in the business situation generally, a marked stimulus to increased consumption should be recognized in the low prices.

The net of these comments is that, while we wish the security and commodity exchanges would behave themselves, we don't think their toboggan-slide will prove to have been *all* bad.

## LABOR

LABOR unrest appears in the textile parade as a cause, not an effect. In fact, many regard it as the most important single contributing factor to the national jitters. We think that view is a sound one.

The one outstanding characteristic of the current unrest is that it is a professional, not an amateur, performance. This is no uprising of the workers of the country demanding a greater share in the national income. Let us limit this discussion to the textile field, for the moment: The average textile worker is only too conscious of the change in his status during recent years. He works far fewer hours and receives much more in his pay-envelope.

What then is it all about? There is the spectacle of a purely professional fight between AF of L and CIO in the country generally; of a professional attempt on the part of TWOC to "organize" the textile industry; of professional picketing carried to a point of such absurdity that there is a good chance that this weapon of organized labor will be laughed out of existence. As background for all this professionalism there is the National Labor Relations Act which represents a medium for the realization of the professional aims of labor organizations.

From this part of the picture it is impossible to derive any encouragement—other than the negative one of relief when, temporarily at least, these pressure groups are forced by public opinion to exercise some slight restraint. We are going through such a period now. Unfortunately, there is no assurance of a lasting truce.

## MIRACLES

OUR scientific background makes it necessary for us to deny the possibility of miracles. And yet, textile manufacturers must regard as almost miraculous some of the current innovations in the technique of their industry. The production of fabrics from glass; the spectacular growth in the use of spun rayon; the reported application of the "electric eye" to the operation of a loom; the development of an "iron picker" with its potential social and economic effects on raw cotton production; the countless improvements in textile machinery such as those reviewed by manufacturers at the N.A.C.M. convention in Providence last month—all these and other changes mean that no single part of the industry's technique is sacred. No machine, no method, no material—no matter how long a tradition it has—is safe from the "miracles" of the laboratory.

And this classification is the one we had in mind at the outset of this article when we referred to some of the parts of the textile parade as "thrilling." This rapid-fire change is all of that. And, frankly, we think it almost the only compelling reason why one should want to be a textile manufacturer today. But it more than makes up for the lack of others.

## FINALLY—

WE could extend this review of the parade indefinitely. We could go into the commercial realm, for example, and touch on the bewildering effect of the fiber-identification movement upon the future merchandising of textiles. We could mention the pressure for an economic boycott of Japan—despite the eloquent testimony of history that such boycotts fan the ardor of an aggressor-nation, and make two hates grow where one hate grew before. We could pile up evidence that every day brings new types of problems to a textile manufacturer.

But enough has been set down, we believe, to indicate the kaleidoscopic character of the textile parade today. Consequently, our job is about done.

There are of course obvious morals. There is the need for closer and closer industry action: unity among the various textile associations, so that a textile attitude on these major problems may be developed and applied. Fortunately we are getting nearer and nearer this coordination. Executives of some of the major groups have been keeping in close touch with each other during the national debates on Federal legislation. As an ardent advocate of this type of action, we welcome it.

Then, too, there is the need for the utmost care in production and pricing policies on the part of individual manufacturers. The next year is going to be a tricky one; the industry can largely write its own ticket by the way in which it insists on a profit, but refrains from pushing too hard on price and on production during periods of speculative purchasing. After all *some* lessons should have been learned last winter.

But beyond all—there is the need for mental flexibility. We have preached this for years—but never has it been of greater importance than today. Some people think that's just a nice academic idea. If they want to see how practical a one it is, they might go over the textile liquidations and failures of recent years—and note how large a percentage of them have been due to failure of individuals and companies to adjust themselves to changing conditions.

If we had to make a cartoon depicting those unfortunate individuals, we'd draw a picture of a man with a stiff neck watching the textile parade. And anyone who has tried that knows how incomplete an impression such a man gets of the parade as a whole.

# *Congress Again . . .*

## The outlook for crop control, wages-and-hours legislation, et al

*By Blaine Stubblefield*
*Washington Office,* TEXTILE WORLD

PRESIDENT Roosevelt's five-point legislative program not only will have to meet strong opposition on its own merits, but it will have to compete for congressional attention against other intensely interesting matters that are not on the calendar.

The President's new foreign policy which scraps the cash-and-carry neutrality act, and the question whether this country will take a hand in world war and politics, will be irresistible to scores of Senators and Representatives who have been abroad, and they all have ideas on foreign policy. Almost certainly Justice Black will be challenged by litigants in Supreme Court. Budget balancing, tax revision, another winter's relief, and sinister warnings from Wall Street will fill many a day's Congressional Record. Then, too, other urgent matters, such as conflicting air transport bills, might be forced on Congress.

### Crop Control

First item on the Administration's hoped-for program is crop control, and probably market control to make it Court-proof. Congress promised it in exchange for the President's cotton loan and subsidy. Present plans are for soil-building and crop acreage control, with probable market control. The pay-off to farmers — (cotton, wheat, and maybe rice, tobacco, and corn) would cost nearly a billion. Mr. Roosevelt says he will spend no more than $500,000,000 out of the treasury. It looks as if the balance will be a processing tax.

Textile mill men object to the tax. If American farming must be subsidized, they say, let the nation shoulder it; don't put it on two or three industries. And mill operators dread the repetition of the confusion that went with the AAA processing tax which was invalidated by the Court. Farm organizations believe they must have controlled production to get anywhere near a living (parity) income, but they greatly fear loss of the foreign market which will go to low-cost foreign production.

### Wages and Hours

Wages and hours will vie with crop control for first place in the heart of Congress. The textile industry, all through last session, was the only big business friend the Black-Connery bill had. The industry would really like to have a labor standards law to combat unfair practices in its lower bills. In fact, it is known that textile groups, by invitation from the Senate labor committee, helped write the bill as passed by the Senate. It calls for regulation of wages not above 40c per hour, and hours not below 40 a week, to be administered by a Labor Standards Board.

But the textile industry is not committed to support the measure through another session. For one reason, the American Federation of Labor slapped a set of amendments into the bill in the House labor committee as the session closed last summer, which would oblige the proposed board to be guided by collective bargaining of unions and to ignore the South's demand for a differential. Furthermore, the textile industry is now confronted with new situations: crop control, a probable processing tax, a bumper crop, a slump in prices, a declining demand for raw cotton and manufactured products. Also it has had a year of the undistributed earnings and surplus tax, of social security, and of the Walsh-Healey Act. All this may cool the warm wages-and-hours policy of the industry.

Industry in the South, again led by a multitude of small lumber producers, is renewing the vigorous fight that stopped the labor standards bill in the House rules committee last session. It is trying to convince cotton farmers that a wage-hour law would add to costs of marketing and conspire with the tariffs to further reduce the foreign market. Grim groups are forming in the cotton States, determined to win a differential or beat the bill entirely.

Southern industry fears that if employers must pay more wages they will get more efficient white help, lay off colored help, and thus create a new and serious race problem. A substantial section of northern industry fears the power of the proposed board; the rest of it is indifferent. New England, on the whole, wants the bill. The Administration, with undoubtedly wide support, contends better wages for the lower third will make better business.

It looks now as if the rules committee will release the bill; if not, a petition will be started at once, and no doubt will succeed. Organized labor, Washington believes, is the only opposition that can prevent a labor law. And organized labor, especially CIO, would lend an attentive ear to a dicker with the South, where it has been most unwelcome. American Federation of Labor would turn on the bill at the drop of a silk hat. At its Denver convention the AF of L passed a resolution condeming wage regulation by "politicians and law-makers," boldly demanding reorganization of its bargaining rights by the Government as well as by industry. But few believe that either AF of L or CIO will dare step out of character as crusaders for the working man, to oppose openly the wages-and-hours law in principle. If the bill leaves them their rights they will damn it with faint praise.

At least one new substitute bill will be introduced in House and Senate by Senator Berry of Tennessee. It will call for statutory standards, a 40-hour maximum work week and a 30 or 35c. minimum wage to blanket specified industries. The law would be enforced by the Department of Justice and no administrative board would be appointed. It is thought that AF of L and possibly CIO may support Berry's bill because it would keep the Government out of collective bargaining. Another possibility is a bill on which President Roosevelt's boys, Corcoran, Cohen, and Jackson, are reported busy. Their draft would be thrown into the breach if all else failed.

### Anti-Trust Laws

On the subject of the anti-trust laws, the President was vague, but he probably was thinking about oil and power monopoly. Nothing could be farther from monopoly than the textile industry, which, witnesses at recent tariff hearings said, has operated at a loss for more than a decade, largely because of ruthless competition.

The proposed seven river valley (TVA) authorities would concern themselves mostly with power and irrigation, but they might draw farm population away from plains land which would be turned back to wool-growing range. And it is conceivable irrigated cotton in the Southwest might become important.

The special session and the regular session will run together as one and Mr. Roosevelt will have to fight all of the enemy and some of his own legions for every line of law he puts in the books.

# *Wage-Hour Bill . . .*

## A cross-section of opinion by textile trade association executives

THE possibility of wage-hour legislation at either the special or regular session of Congress is the most important single potentiality in the affairs of the textile industry. Whether or not one likes the idea of such legislation, the fact remains that there *may* soon be such a law.

Consequently, the next question is: What kind of a law should it be?

TEXTILE WORLD addressed to textile trade association executives—who for years have been on the firing-line at Washington presenting the views of their industries—the following questions:

1. Do you desire to see such wage-hour legislation enacted during the special session—or, if not feasible then, early in the regular session?

2. If you do, will you indicate what form of administrative set-up you favor for supervision and enforcement of minimum wages and maximum hours?

Answers from a representative group of these executives appear below.—*Editor.*

## *A Reasonable Bill Unlikely*

### By Arthur Besse

*President, National Association of Wool Manufacturers*

I am not in favor of pressing the Congress to pass wage-and-hour legislation at the special session nor at the regular session next year. I believe it highly desirable to prevent unduly long hours or unduly low wages but I am not optimistic that the present Congress can be counted upon to give realistic consideration to a wage-and-hour bill. Most of the members take a political approach and a moderate and reasonable bill would not appear to them to be useful as political capital.

If a bill is to be passed, I favor a moderate measure which would not unduly regiment industry and make it more difficult to maintain employment in the face of what may prove to be a somewhat unsatisfactory period. The standards should be based solely upon social grounds establishing levels below which no one could go. I believe existing agencies of the Government should handle the enforcement of the standards. If no exceptions are made—and I believe the standards should be sufficiently realistic so that such should not be necessary—the problem is one of enforcement rather than administration.

My answer to those who claim that a board is necessary to handle countless special cases is that if the law is such that it is necessary to have exceptions and special regulations for local conditions, it becomes a matter for local rather than Federal treatment and all justification for a Federal law applying to the entire country vanishes.

ARTHUR BESSE

## *Hosiery Industry for Sound Bill*

### By Earl Constantine

*Managing Director, National Association of Hosiery Manufacturers*

AT a general conference held by the hosiery industry on Feb. 11 and 12, 1937, the industry unanimously went on record "in favor of reasonable and practical Federally enforced legislation regulating hours, wages and fair trade practices." The position of the industry remains unchanged.

In May 1937 the President submitted to Congress a proposed law governing minimum wages and maximum hours. At his request it was sponsored by Senator Black in the Senate, and Congressman Connery in the House, and became known as the Black-Connery Bill. This measure proposed a character and degree of government control of hours and wages which could not remotely approach being either "reasonable" or "practical" and therefore was opposed by representatives of our industry as it was generally opposed by all industry. The Senate Committee on Education and Labor reported a committee bill which was considerably more simple and practical than the President's proposal. The House committee on labor took the Senate Committee's draft and further improved upon it. The best proposal of all was the House proposal. This proposal never reached discussion on the floor as it was not given a Rule.

The more important improvements contained in the House committee draft were:

(a) All employees of the proposed labor standards board were placed under civil service laws in contrast to the Senate draft which provided for the board to select, employ and fix the compensation of certain employees.

(b) It provided that the board shall be represented in all litigation by the Attorney General or by such attorney or attorneys as he may designate in contrast to the Senate provision permitting the board to set up its own legal staff.

(c) It discouraged third-shift operations by penalizing operations between midnight and 6 a.m. with time and a half wage rates. Such a provision would be particularly valuable to the textile industries.

We know that the special session which convenes on November 15 is under obligation to the President to give first consideration to agricultural control legislation. It is more than likely that hours and wages legislation will be considered next. Assuming that such legislation enters debate within two weeks after the session convenes, it does not seem possible that during the four weeks of December, with holiday interruptions, much sound progress can be made toward a disposal of the issue.

Probably the final disposition will not come until the regular session which starts early in January. If there be any legislation which should not be rushed because of the innumerable problems which would arise in its administration, it is legislation of the character under discussion. It is too early to say whether consideration of hours-and-wages legislation would start on the premise of the House or the Senate draft of the last session although this would seem likely. The alternative may be the introduction of an entirely new proposal coming from the President or from other directions. In either case slow and sound consideration is necessary and desirable.

The uncertainty as to hours-and-wages legislation, or the character of the same, has contributed materially to the hesitation and lack of confidence which is evidenced by industry generally. The disposal of the issue in some definite form is therefore desirable. If, however, such legislation is to endure beyond a trial period, and not itself constitute a source of continued and constant uncertainty, it is essential that it be very simple and direct in character. If its premise is a social premise then certainly a floor on wages and a ceiling on hours should accomplish these

understandable objectives. Beyond that we would be entering into a field of constant meddling with that element, labor, which constitutes the highest item of cost and the principal worry of management. A fixed social minimum wage and maximum week would throw the chiseler and the unsocial employer into line, which is all that need be or should be attempted.

In conclusion, I desire to say that in our appearance at the hearings in Washington last June we indicated our willingness to accept an administrative board in the interests of fitting a minimum wage of each industry to its needs. Few other industries supported such attitude, influenced in part no doubt by the fact that administrative bodies have a way of constantly expanding their powers and activities until what starts in simple form ends up in complex form. Because laws of this character require more than the "letter" to make them function in a most satisfactory manner, and they must have the understanding and the cooperation of those governed, it would seem desirable to avoid an administrative board if possible and to thus cut down much of the understandable opposition which exists against legislation on the subject.

EARL CONSTANTINE

## *Does Not Desire Bill Now Nor Later*

### By Herbert Gutterson

*President, Institute of Carpet Manufacturers of America*

HERBERT GUTTERSON

IN response to your first question, the members of our organization do not desire such wage-and-hour legislation enacted during the special session, nor do they desire it at a regular session. We opposed this legislation before the committee hearings during the last session upon at least three grounds:

The first, that it would not in practice deal with the so-called "sweat-shop" situation, toward the elimination of which the President voiced the opinion that he desired this legislation passed.

Second, that we were opposed to a commission given powers, by Congress, to virtually fix every wage in a manufacturing plant. It follows, therefore, that this proposed wage-and-hour bill is not really minimum wage legislation.

Third, we believe it is a practical impossibility, both in the scope of its responsibility and in the undertaking, for the proposed commission to deal with the intricacy and vastness of what this legislation proposes to put in their hands.

I might add further, as a fourth reason, that our industry considers that this type of legislation is not what is needed to contribute to the increasing of employment or to the security of the worker in his job.

In view of the answers to your first question, your second question does not need an answer.

## *Georgia Opposition Almost Unanimous*

### By T. M. Forbes

*Secretary, Cotton Manufacturers Association of Georgia*

I THINK the position of the Georgia mills as a whole, with possibly one exception, can be summed up by saying that they are very definitely opposed to any type of Federal regulation of wages and hours, whether that be done by a board or a bureau or by specific standards established by Congress. They feel that such legislation is impracticable, impossible of fair administration and injurious to the normal functioning of American business and industry.

## *A Five-Point Opposition*

### By William P. Jacobs

*Secretary-Treasurer, Cotton Manufacturers Association of South Carolina*

I do not desire to see the wages-and-hours legislation enacted at the special session of Congress, or at any other session.

My reaction on this matter is a reflection of the fact that I am familiar with the situation in South Carolina, more than any other section, and I am thinking in terms of the needs of the industry and the working man in this State primarily.

In the first place, we have very little unemployment in the State. As a matter of fact at the present time, so far as the textile industry is concerned, we are overemployed. I do not think that the passage of such legislation, therefore, would be of any particular advantage to the workers in South Carolina, or gain employment for them, or any decrease in unemployment.

In the second place, the wages of the textile workers in South Carolina have been greatly increased in the last few years, and it is not likely that any legislation on this subject would increase the earning power of the textile workers in the State to any great extent.

In the third place, I believe that the textile industry is faced with serious competition from abroad, and can ill afford drastic changes upward in its wage scale unless the products manufactured can be sold at a profit. There is no chance for anyone to participate permanently, whether he be worker, stockholder or otherwise, unless the mills can sell their goods.

In the fourth place, our hours in South Carolina are not too long. Most of the mills are working on a 40-hour basis regularly, and quite a few of them are below the 40-hour basis at the present time temporarily because of the absence of sales, and the inability of the mills to pile up large unsold stocks.

In the fifth place, there has been a great amount of discussion in the newspapers on the advisability, or lack of advisability, of wages-and-hours legislation for industry; but we as a nation are overlooking the most important factor of all —the farmer. The wages-and-hours bill, as now constituted, would penalize the farmers by leading their inefficient workers on the farms to expect a great deal more than trade and economic circumstances can possibly justify; and what we need to do is not so much to improve the situation with the industrial workers, who already have a comparatively favorable working set-up, but to concentrate our attention on the rehabilitation of the agricultural industry, and help that situation.

The wages-and-hours bill, which hurts agriculture, will disrupt the economic balance and play havoc, instead of helping the situation.

In response to your second question, will say that I do not believe that such matters as wages and hours can be effectively handled by Federal administration of any kind. Federal administrative activity usually leads to boards, and boards are the curse of this country. We have too many of them already in Washington. We need to simplify our Federal form of government, and eliminate many of the boards now in existence.

In the light of the present trend, I doubt seriously if wages-and-hours legislation would be properly, uniformly, or fairly enforced. I doubt whether its enforcement would be effective. I am inclined to think the wages-and-hours legislation, with Federal administration through a

W. P. JACOBS

board, will do a great deal more harm than good, and continue to stir up unrest, when it is peace and harmony that we want more than anything else for industrial prosperity.

On the whole, the textile workers in South Carolina are not at the present time discontented. What the State needs more than anything else is payrolls—steady payrolls. Legislation can only adversely affect such payrolls. What the worker needs is steady, permanent employment. The legislation proposed will not assure it, but as a matter of fact, will jeopardize such employment.

So far as child labor is concerned, we have no child labor in South Carolina There is not a single minor below the age of 16 working in a single cotton mill in South Carolina, though it is hard to make some people believe that. It is a fact, however, and is confirmed by the report of the Commissioner of Labor of South Carolina.

## *Favors Simple Law Under FTC*

### By Taylor R. Durham

*Executive Secretary, Southern Hosiery Manufacturers Association*

TAYLOR DURHAM

THE experience of industry in dealing with government regulatory agencies has been anything but satisfactory. For this reason, practically all manufacturers who express themselves on the subject, even though favorable to some type of regulations covering minimum wages and maximum hours, usually do so with reservations because they are apprehensive with respect to the administration of any bill which might be enacted. The tendency toward bureaucracy is so strong and the desire for constantly increasing power on the part of the several bureaus is so constant that the fear is always expressed that when authority is once vested in an agency frequent and constant demands will be made for additional power and the broadening of the scope of authority. In spite of all this, it is evident that a majority of the hosiery industry is willing to submit to the adoption of some simplified measure for two primary reasons: first, because for good or evil and whether it is desirable or not, the enactment of legislation on this subject appears to be inevitable; second, because a marginal fringe of the industry has departed from code standards. In view of the further fact that the industry is over-capacitated, a very unwholesome competitive situation has been created.

It is generally conceded that such a measure will not level out competition to any appreciable extent, but can only serve to eliminate that small percentage of instances where extremely low wages and long hours have been imposed upon employees.

For social reasons, the establishing of minimum wages and maximum hours may be justified, but the industry is unalterably opposed to the provisions of the original bill which provided for the fixing of wages other than the minimum for the lowest paid workers. In any event, the measure will probably not accomplish the results claimed by its proponents because legislative fiat rarely ever successfully controls economic conditions. On the contrary, the pages of history are replete with failures.

Since no emergency exists, it is not important whether this legislation is enacted at the special session or in the regular session to follow. There are too many Government agencies now and, instead of creating a new board for the administration of the act, when and if it is enacted, the administration should be placed under the direction of the Department of Labor or the Federal Trade Commission. If the act is to be administered by the Federal Trade Commission, it should retain the provisions of direct penalties for violations because the Federal Trade Commission is an injunctive agency only and is not empowered to impose penalties.

## *N.A.C.M. Favors Law Without Board*

SPEAKING at the recent convention of the National Association of Cotton Manufacturers, Russell T. Fisher, president, said:

"There have been so many contradictory and inconsistent statements made on the position of the association in regard to the wage and hour bill, that I think it might be well to restate our position on the matter.

"First, we are definitely opposed to regulation of the industry through a commission as proposed in the Ellenbogen Textile Bill and in the Black-Connery wage and hour bill. The powers that would have been given these commissions were so broad that practically all phases of the employment and work of employees would be subject to the regulations of the proposed boards.

"Second, the association does favor a maximum work week; it does favor a minimum subsistence wage for each industry; and it does favor the elimination of the employment of women and minors on the graveyard shift."

At the same convention, the association passed a resolution endorsing a maximum work week for employees, a minimum wage, elimination of the employment of women and minors between midnight and 6 a.m.,—all the above principles to apply without discrimination uniformly throughout each industry.

The convention also passed a resolution opposing the creation of a board, or commission, for the purpose of administering proposed laws and regulations on wages, hours of labor and other matters, as proposed by impending national legislation.

RUSSELL T. FISHER

## *Not Conducive to Recovery*

### By Chas. Whitney Dall

*President, National Rayon Weavers Association*

C. W. DALL

◆ *In submitting this answer to our questions, Mr. Dall made it clear that he was stating his personal opinion only, and was not attempting to express the opinion of his industry.*—Editor.

1. Owing to the fact that the House has not reported out of the committee the same wage-and-hour bill passed in the Senate, and, in addition, there being a number of radical amendments, if not a complete revision of the bill, considered at the present time, opinion on the revisions of the bill naturally has not been crystallized in the rayon weaving industry. I am inclined to think the majority of the industry is opposed to the principle of Federal control of wages and hours, even though some of the provisions of the bill might be attractive. The reason is illustrated thus: In one of his recent western speeches the President, in discussing the wage and hour bill, stated that it was not calculated to restore the NRA YET; John Lewis, in a speech delivered on about the same date, referred to the bill as being only one step in the President's program of control of industry and planned economy. I feel that the rayon weaving industry believes that the

proposed new managed economics are not conducive to a recovery to prosperous times.

2. I believe that the labor standards board, as set up in the Senate bill, would find enforcement and administration of the act beyond its powers, with the same result as we experienced in the National Recovery Administration, viz., it proved unworkable, and broke down of its own weight. I don't know of any form of administration, except possibly that of an enormous bureaucracy, which could accomplish the purpose.

## *Urges Existing Enforcing Agencies*

**By Irene L. Blunt**

*Secretary, National Federation of Textiles, Inc.*

THE Federation, for a long period of time, has believed that the enactment of a proper wage and hour bill would do a great deal in meeting some of the really vital problems of the textile industry. We can only repeat what we have said before: That it would be to the benefit of the textile industry if Congress were to enact legislation fixing minimum wages and maximum hours. Labor conditions of sub-standard character would be eliminated and a much needed floor provided in checking the unsatisfactory conditions that result from the use of too low wages and too long hours as a competitive advantage.

IRENE L. BLUNT

As far as the administrative set-up is concerned, we believe that it should be enforced through existing Government agencies, either the courts or already established commissions, and that the duties of the enforcing agency be strictly those of enforcement and not administration. A law requiring compliance with standards that are reasonable enough to accomplish the desired end (that is the improvement of the lower end of the labor scale), but not so high as to pave the way for innumerable applications for exceptions, should not find itself handicapped by the unfortunate complications of NRA days involving both administration and enforcement. Enforcement rather than administration would have the added advantage of assurance to industry against undue regimentation. It would be simply a maintenance of desirable social conditions that will enable responsible employers to compete on an adequate basis.

## *Wants Law Without Board*

**By Harvey Willson,**

*General Manager, National Upholstery & Drapery Textile Assn., Inc.*

THE upholstery and drapery textile industry favors Federal legislation in the matter of maximum hours and minimum wages because it believes that the enactment of a practical wage-and-hour bill would do a great deal toward meeting some of the competitive problems of this industry.

We are in favor of Government supervision of hours and wages provided it is done only on a simple, clean-cut basis of a fixed minimum wage for the unskilled worker and a maximum work-week. We believe it to be very unwise to set up a board with power to vary the minimum wage and maximum hours and to inject itself into other phases of the employer-employee relationship. Regardless of any effort which may be made to limit the powers of a board in the drafting of this bill, the fact of the matter is that boards, commissions, bureaus, and the like, almost invariably tend to exceed the authority and scope of activity originally contemplated for them.

This is quite understandable, not only because such arms of the Government seem naturally to have a tendency to reach out for more authority and influence but also because complex situations never imagined when the board was established appear to require legally unauthorized expansion of its authority for the sake of practical administration of the law.

## *And from the Deep South . . .*

♦ *Finally, as allegedly representative of the attitude in another section of the country, the following account of one movement in the Deep South is submitted by a TEXTILE WORLD correspondent.*—Editor.

COINCIDENT with the reaction of those attending the National Association of Cotton Manufacturers convention as favoring the passage of a certain type of wage-hour bill at the next session of Congress was the rebel war cry of Deep South groups heartily antagonistic to such a measure.

Mississippi has led the tumult and the shouting with the setting up of an organization to fight the wage-hour bill, and in war-like scare-lines announced through the press that a State committee had been appointed to down such legislation.

Homer Casteel, chairman of the Railroad Commission, ex-lieutenant governor and runner-up for the governor's chair on several occasions, was named chairman of the committee, and to serve with him were appointed: L. O. Crosby, wealthy lumber magnate; Garner Lester, head of the Cotton Ginners Association; Norman Mott, president of the Press Association; Willa Ruth Deprator of Jackson, secretary of Business and Professional Women; Rhea Blake, secretary of the Delta Chamber of Commerce.

It is evident that the battle-lines will be finely drawn and ammunition will comprise a heavy newspaper campaign with publicity stories and paid advertising by which the people and the legislators of the Deep South will be educated as to the evils of industrial legislation. The plan was to work fast and lay down a heavy barrage before the special session of Congress met.

It is perfectly natural for Mississippi to engage in, and lead, a fight to the bitter end against a passage of a wage-hour measure. The State is in the midst of a move toward industrial development under Governor White's subsidized industry program, and small recently-erected garment and needle plants dot the landscape.

Should a national wage-hour law be enacted there is little reason to believe that Mississippi's industrial plan will be attractive for the enticement of industry to the State and Mississippi believes in fighting for what she has and for what she may get in her industrial future.

Another vital reason for the State's fight on this measure is the predicament in which cotton planters may find themselves, for while agricultural labor has been excluded, so far, in all drafts of wages-and-hours legislation, organized agricultural labor has appeared on the scene with the Southern Tenant Farmers Union, sub-rosa CIO affiliate, having well-established headquarters at a cooperative farm in the Delta and claiming approximately 75,000 dues-paying members. From expressions at the STFU convention at Memphis, one deducts that a drive will be made by this union to have tenant farmers included in any beneficial labor legislation, even though the economic soundness of such an idea is to be questioned due to the seasonal demands of agriculture.

The above are good reasons for fighting the bill. The real reason is deeper and more underlying. Mississippi in particular and the entire South in general is agricultural-minded first and for generations back. It has become industry-conscious only in comparative recent years. The majority of the South's votes are still cast by farmers: big-acreage planters, one-horse farmers, tenant farmers and share-croppers. These voters want government subsidized agriculture and the fat pocketbooks that federal bonuses and government acreage-curtailment checks bring in. Southern Congressmen know this, southern Senators know it. They will follow Mississippi's lead in its warfare against hour-wage legislation. They will raise a lot of smoke and violent language will be used, but when Congress meets, if they can get their desired agricultural plan through, they will call off their dogs.

It will then be a ten-to-one shot that industrial legislation on hours and wages will go through the houses of Congress as scheduled.

# Cotton-Textile Institute

## Considers legislation, taxation and cotton promotion at eleventh annual meeting

PROPOSED legislation, the tax situation, and cotton promotion received almost equal consideration at the eleventh annual meeting of the Cotton-Textile Institute, held Oct. 28 at the Biltmore Hotel in New York. It was one of those rare meetings where no resolutions were adopted. Yet it was easy to gather from private conversation with individuals that the industry is keenly aware of the many problems confronting it within the next few months. One of the most constructive phases of the program was the emphasis placed on developing new markets for cotton and cotton goods.

### Legislation and Foreign Trade

Although the Institute did not officially go on record in the form of a resolution, there was plenty of opposition to certain legislative proposals, such as the original Black-Connery bill and re-imposition of a processing tax to finance a crop-control program. For example, Dr. Claudius T. Murchison, president of the Institute, in his annual address, said that "if an iniquitous measure can be defined as one which is subversive of American institutions and practices, then this bill (Black-Connery) as originally framed may be properly described as the most iniquitous measure ever submitted for consideration of the American Congress."

*Dr. C. T. Murchison, president of the Institute, who presided*

He further explained that the Black-Connery bill is in the process of being revised or rewritten at the present time and that the industry has no exact knowledge of what the ultimate changes will be. But irrespective of this, he declared emphatically, the industry is in a position to say two things definitely: "First, it is opposed to the bill as enacted by the Senate and as revised by the House Labor Committee. Second, it is free to take whatever position with respect to future legislative proposals as may seem wise after the content and purpose of such proposals have become known."

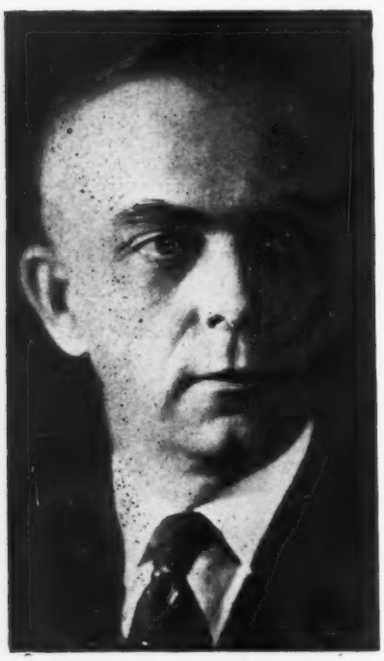
Emphasizing that the industry is in complete sympathy with the problems of the cotton farmer, Dr. Murchison declared that "although the cotton-textile industry does not intend to oppose constructive farm legislation, it will resist with every power at its command any proposal to restore the processing tax as a means of financing an agricultural program." Such a tax places cotton at a competitive disadvantage relative to its many substitutes and so reduces the actual consumption of cotton."

With reference to foreign trade, he described the complete accord with which the Japanese trade agreement is operating, and said that "it is difficult indeed to view with patience the efforts now being made in some quarters to resort to international boycott." It is his confident hope that the cotton-textile industry will "refuse to dishonor itself by participating in any organized boycott activities against a friendly country so long as decent alternative methods are available."

He concluded with a brief description of progress made by the Institute's cotton-promotion program, including development of cotton roads, cotton houses, cotton bale coverings, etc.

### Federal Taxation Analyzed

Taxation was next taken up, and Col. Robert Montgomery, of Lybrand, Ross Bros. & Montgomery, analyzed the situation as he sees it. Directing a blast at Federal tax laws, he vehemently stated that "What this country needs is a non-partisan commission to



*John H. Cheatham, Griffin, Ga., elected vice-president of Institute*

*Chas. F. Broughton, New Bedford, Mass., elected vice-president of Institute*

## Intra-Family Salesmanship

***"Cottons on the Fashion Horizon"—the showing of representative types of 1938 cotton fashions for men and women—proved to be one of the outstanding features of the annual meeting of the Cotton-Textile Institute. Miss Catherine Cleveland did her usual excellent job of direction. Personally, we think it vital that cotton manufacturers be kept in touch with the promotional work which the Institute is doing—and consequently we feel that shows like that at the annual meeting, and the one held at the N. A. C. M. meeting last month, are at least as important as those staged before prospective customers.—Editor.***

sit down, for several years if necessary, and revamp the entire tax structure so that the business man will stand some chance of making some sense out of it." However, he recognized the futility of such a hope and said that the best we could expect in the near future under any conditions would be curing some of the worst sore spots.

Colonel Montgomery emphasized that the only way to get relief from an intolerable tax situation, is by means of votes. One concrete method of getting votes is to "play ball" with labor unions as the leaders want business to be profitable enough to pay good wages. However, "if business hasn't talked with labor leaders and won't, there is no chance for voting help there."

Concrete suggestions of value to the business man were as follows:

"Where (Treasury) rulings and deficiencies are unsound or unfair, do not hesitate to fight them. It is worthwhile to do so, and this is pointedly indicated by the large proportion of Board and Tax Appeal decisions which have recently gone against the Treasury."

"From the standpoint of taxes, the more accurate results obtainable by the use of the 'natural business year' [based on a 12-month cycle of business] are of considerable importance. Of equally great importance is the fact that when business is at a low ebb, management has more time to devote to the problem of income taxes. Operating results can be estimated and studied a month or two before the close of the year, dividend policies can be finally determined, and necessary steps taken in time to minimize the surtax on undistributed profits. A physical inventory at this time would also be advantageous.

"Another thing that can be done to facilitate operations under the maze of complicated and unfair Federal tax laws is to liquidate subsidiaries. By this means it is possible to mitigate or avoid capital stock and excess-profits tax duplications and minimize the income tax on intercompany dividends.

### Cotton Promotion Lauded

The increasing importance of promoting new uses of cotton was emphasized by C. C. Revere, of Munds, Winslow & Potter, in an address during the luncheon session. He praised the recent booklet, "Cotton Consumption in the United States," by Charles K. Everett, as one of the most constructive pieces of promotion he had ever read, and urged the manufacturers to give renewed thought toward developing new uses for cotton. Praising cotton roads and cotton houses as fine examples of new uses, he said that the surface has hardly been scratched as far as exploiting domestic and industrial fields are concerned. He expects much progress to be made in this direction within the next few years.

*A sample of the style show which added color and informality to the luncheon. (Courtesy Cotton-Textile Institute)*

The afternoon session was featured with a discussion of the "Commodity Exchange Act" by J. M. Mehl, assistant chief of the Commodity Exchange Administration. He traced the history of the act and explained two required reports of especial interest to members of the cotton-textile industry. One of these is made by persons or firms having open contracts in any one future equal to or in excess of 5,000 bales of cotton. The other is a weekly report made by merchants and processors having open contracts in any one future equal to or in excess of 5,000 bales. The latter report is rendered at the close of business each Friday and includes, in addition to a full report of trading in futures, a statement of spot cotton positions including basis position and "net fixed-price" position. Net fixed-price position is also known in the trade as the "hedgeable" position.

Lawrence Myers, of the Department of Agriculture, spoke briefly of the development work in cotton sponsored by the Government.

### Election of Officers

Officers were reelected as follows: Dr. Murchison, president; Goldthwaite H. Dorr, chairman of the board; Paul B. Halstead, secretary and treasurer. John H. Cheatham, Griffin, Ga., and Charles F. Broughton, New Bedford, Mass., were elected vice-presidents. Directors named to serve for three years included D. W. Anderson, Allan Barrows, Sydney Bruce, G. Edward Buxton, Fuller E. Callaway, Charles A. Cannon, M. L. Cates, J. A. Chapman, Jr., J. H. Cheatham, A. H. Crossman, R. C. Dick, W. H. Entwistle, R. E. Henry, Don P. Johnston, Homer Loring, Ronald T. Lyman, Harvey W. Moore, E. M. Philippi, Paul A. Redmond, H. G. Simonds, W. F. Staples, W. H. Suttenfield, R. C. Thatcher, and George M. Wright. New members elected to the executive committee were Harry L. Bailey, Frank I. Neild, R. E. Henry, and George Wright.

The luncheon session was the scene of a style show introducing garments designed by leading stylists for both men and women. It was directed by Miss Catherine Cleveland, consumer consultant of the Cotton Textile Institute.

A meeting of the board of governors concluded the day's activities.

# *Hosiery Industry Convenes*

## Move for fair trade rules highlights New York conference

PROBLEMS of the hosiery industry were submitted to microscopic analysis, and definite steps toward improving trade conditions were taken at the second annual conference of that industry which was held Oct. 14 and 15 at the Waldorf-Astoria Hotel, New York. The event, staged under the auspices of the National Association of Hosiery Manufacturers, brought together nearly 300 manufacturers representing all branches of the industry. A notable aspect of the conference was the manifest desire for cooperation and the spirit of constructive self-criticism which dominated all sessions.

### Convention Highlights

The highlight of the gathering was the appointment of a committee to draft fair trade practice rules; this committee which will represent all divisions, will make an exhaustive study of the whole question of trade practices. Then rules are to be developed for submission to the Federal Trade Commission. This step was taken at the Thursday session, toward the close of an extended program of important addresses. Most of the speakers echoed one basic thought, namely, the need for cooperation and self-regulation to eradicate current trade evils. The manufacturers present heard themselves alternately commended and criticised; it was notable too that their own members, speaking from the floor were the most severe critics.

*H. W. Brightman, who addressed the hosiery men on merchandising*

The principal speakers at the Thursday meeting were: Wm. H. Gosch, president of the National Association, Arthur D. Whiteside, president, Dun & Bradstreet, Inc., Harold W. Brightman, vice-president, L. Bamberger & Co., chairman of the merchandising division of the National Retail Dry Goods Association, and Otto C. Semonson, of Ernst & Ernst, accountants. Early in the day, Mr. Gosch turned the gavel over to Earl Constantine, managing director, and Mr. Constantine led the discussion on the various scheduled topics including "What Do the Hosiery Statistics Show?" and "How Can the Industry Improve its Trade Practices?"

The need for a social viewpoint in business was the chief point of an unusually frank address by Mr. Whiteside. Opening with personal tributes to the hosiery manufacturers and reminiscences of his early contacts with that industry, Mr. Whiteside made a strong plea for a liberal view of the labor relations problem. "Make cooperation a rule of your business," he urged, adding that the social problems now crystallizing will take "every ounce of the business man's intelligence." The future trend of government, he said, will depend on the leadership business gives to employees, and he emphasized that the chief business need today is for understanding and humane treatment.

### Crusade for Identification

There was plenty of punch in Mr. Brightman's talk. As had been expected, this leading crusader for textile identification discussed hosiery in its relation to that much-mooted question. He was both critical and commendatory. The hosiery manufacturers were praised for (a) their recently promulgated full-fashioned standards; (b) their current move to develop a code of fair trade practices; and (c) their determination, as shown at the conference, to "put their house in order." Turning critic, then, he said the hosiery industry had lost heavily in "prestige, reputation and profits" when it gave up marking irregulars. "There are at least a few present this afternoon" was the speaker's pointed comment, "who yielded to temptation" with regard to branding irregulars. Declaring emphatically that retailers refuse to be "put on the spot" by the consumer as regards proper labelling of textiles, he said the merchants are determined to "pass that spot on to their sources of supply because these sources are the logical ones to furnish such information." Mr. Brightman concluded his talk by pledging support of the N.R.D.G.A. in all effort by the hosiery association to solve the labelling problem. He paid

*A. D. Whiteside, who addressed the convention on management*

the following tribute to the trade organization: "During recent years your association has done a pioneering job of real significance and be assured we will cooperate with you in completing the job you have begun."

Following Mr. Brightman's address, Mr. Constantine invited questions and that started some spirited discussion. Introducing himself "as one who stamps his irregulars," John M. Botts, president, Harrington & Waring, New York, questioned Mr. Brightman as to the N.R.D.G.A.'s policy toward stores which oppose stamping of irregulars; Mr. Botts pointed out that often mills which want to identify such goods face resistance on the part of the retail buyers. In answer, Mr. Brightman said his organization would like to have names of such offenders; the speaker added that "policing in both divisions is essential if we are to eradicate the evil."

The policies of the hosiery association with respect to the coming year were clearly set forth by Mr. Gosch, in his address as president. Mr. Gosch's pres-

entation was widely acclaimed among the manufacturers as one of the best analyses of the hosiery industry of late years. Primarily he emphasized the need for action, as against experimentation, to solve the industry's problems . . . Experimental days have passed; the formula for correction is at hand and the rest is up to the manufacturers. Many things point to a favorable outlook for hosiery: Increased buying power among consumers; tendency toward better volume in higher priced lines; closer watch by manufacturers on inventory; healthy attitude on labor relations as manifest in the 40-hour week of two shifts and the "common sense stand on wages."

With respect to the agitation for a boycott of Japanese goods, Mr. Gosch said that any boycott of raw silk in this country would work hardship on our

*Earl Constantine, managing director of the N.A.H.M.*

workers as well as on management. He pointed out that raw silk is a world commodity, and that "the silk worm has no nationality." Concluding his reference to the boycott movement he said: "For all practical purposes a boycott would not stop the forces against which a boycott would be directed—boycotts never do."

### To Avoid Seasonal Lulls

After his review of the current picture and its problems, Mr. Gosch said he hoped that "we can in the future so conduct operations of our plants that there will be a steady flow of goods with due allowance for seasonal fluctuations, as far as possible, steady production, insuring steady earnings to our workers and safety for all concerned."

Mr. Semonson discussed methods for improving the industry's costing practices.

Explaining that his aim was to lay the groundwork for further discussion and action by the industry, he analyzed the cost accounting problems of the hosiery industry from six aspects: (a) material content; (b) yarn waste; (c) variation in labor cost; (d) depreciation; (e) loss on imperfects; (f) dyeing and refinishing losses. Among his recommendations were: A standard method of calculating material content for each hosiery branch; a study of the possibility of establishing standard waste allowances; use by every manufacturer of a simple overall check to verify labor cost estimates; clearer recognition of the essential differences between tax and cost depreciations; a regular practice of comparing estimates on loss in imperfects with actual loss; adoption of a calculating method which he submitted for application to "redyeing and refinishing losses."

### Aid in Cost Methods

Discussion followed Mr. Semonson's talk, and the manufacturers expressed keen interest in various points, particularly with respect to depreciation. Mr. Constantine commended the speaker for his presentation, but emphasized that the cost analysis would be helpful only if it were to be followed up by action. In line with that premise he then made known that the association was developing plans to aid hosiery manufacturers improve their costing methods. The first step, he said, would be a series of six memorandums, to be sent out, one each month, outlining methods for applying the ideas suggested by Mr. Semonson. At this point, the conference passed a motion made by John Wyckoff Mettler, president of Interwoven Stocking Co., that members supply the association with confidential cost data; from these data averages would be worked out and used as a guide by the members generally.

A report on hosiery statistics for 1937 was read by Mr. Constantine; it showed a 11.2% gain in hosiery shipments in the first eight months of 1937 over 1936. In the afternoon Mr. Constantine reported on recent surveys covering marking of irregulars and returns. Discussing the study of irregulars he said the results indicated that there was a strong desire among manufacturers to have established rules providing for marking of such hosiery, which would give the proper identification.

*Wm. H. Gosch, president of the N.A.H.M.*

The Oct. 15 meeting was in executive session; it comprised independent conferences of the seamless and full-fashioned groups in the morning and a general meeting in the afternoon. The seamless conference heard a report on the elastic tops patent situation by a committee of the Southern Hosiery Manufacturers' Association following which it was decided to enlarge this committee to include three northern seamless manufacturers. When the conference adjourned Friday evening the feeling was general among manufacturers that much of the value to the industry had been accomplished, especially in the direction of improved trade practices.

**HIGH-LIGHTS of the Hosiery Industry Conference in New York last month: 300 leading manufacturers present. . . . Committee appointed to draft fair-trade practice rules. . . . Evils of misbranding roundly denounced. . . . Constructive program for 1938 outlined. . . . And President Gosch made the most brilliant speech of his career.**

**The Bermuda trip might have been more fun—but it couldn't have been more resultful.—*Editor.***

# In the News

## F.T.C. Promulgates Rayon Identity Rules

Fair trade practice rules for the rayon industry which include the mandate that brand names can be used only in combination with the term "rayon" were made public by the Federal Trade Commission Oct. 16, and became effective as of that date. The rules are sweeping in scope; the first reaction of the rayon trade to the commission's action was a feeling of bewilderment and resentment. The rules require further that the words "chiffon", "velvet", "crepe" and other terms usually accepted as descriptive of construction, can be applied to rayon only when used in combination with the generic term "rayon". The rules are divided into two groups; the first group, which are mandatory, embrace seven provisions, the second group comprise suggestions for trade guidance, such as educational effort, etc.

Methods of describing mixed fabrics or other merchandise, are set forth in a rule in the mandatory group which directs that "yarns, thread, strands, fabric" combining other fibers with rayon, "shall be described in order of fiber preponderance by weight", in equal size type. Where fiber contents comprising at least 95% of a mixed product are disclosed by percentages as well as by name, the other 5% may be designated as "other fibers" or the like, with minor exceptions; when 5% or less of a fiber in a mixture is disclosed by percentage, it shall be stated exactly as "2% wool" or "2% silk." the same rule also provides for disclosure of any loading material or adulterant. Another rule declares misleading merchandising practices in display or advertising of rayon or rayon mixtures which might mislead the customer to be unfair trade practice.

While hesitant to give final opinions pending full study of the rules, rayon industry leaders regarded the new code skeptically; it was doubtful whether producers would sign the provisions. The early comment by Roy A. Cheney, managing director of the Underwear Institute, that he thought the Commission has exceeded its legal powers and that the rules were unenforceable, might be taken as representing a considerable portion of the textile industry affected by the mandate. Other trade groups took prompt action to advise their members of the rules. Earl Constantine, managing director, National Association of Hosiery Manufacturers, sent a special message to hosiery manufacturers, counselling them to thoroughly familiarize themselves with the rules.

## D-13 Plans Staple Tests

Another of its big fall meetings—bigger and busier than ever before, as a matter of fact—was held by the intrepid Committee D-13, the textile committee of the American Society for Testing Materials, at the Hotel New Yorker, New York, Oct. 20 to 22.

A high-light of the business sessions was the creation of a special staple committee within the rayon subcommittee. One of the first subjects to be considered by this group will be a uniform yarn-numbering system, and particular study will be made of the advantages of the Typp system proposed and advocated by TEXTILE WORLD. Another highlight was publication of the 1937 "A.S.T.M. Standards on Textile Materials," containing 44 standards.

The following papers were presented: "Tests for Physical Properties of Fibers," by C. J. Huber, U. S. Testing Co.; "Tests for Physical Properties of Yarns," by H. F. Schiefer, National Bureau of Standards; "Tests for Physical Properties of Fabrics," by Ethel Phelps, University of Minnesota; "Abrasion and Wear Testing Machines," by H. J. Ball, Lowell Textile Institute, chairman of D-13; and "Microscopic Test Methods," by E. R. Schwarz, Massachusetts Institute of Technology.

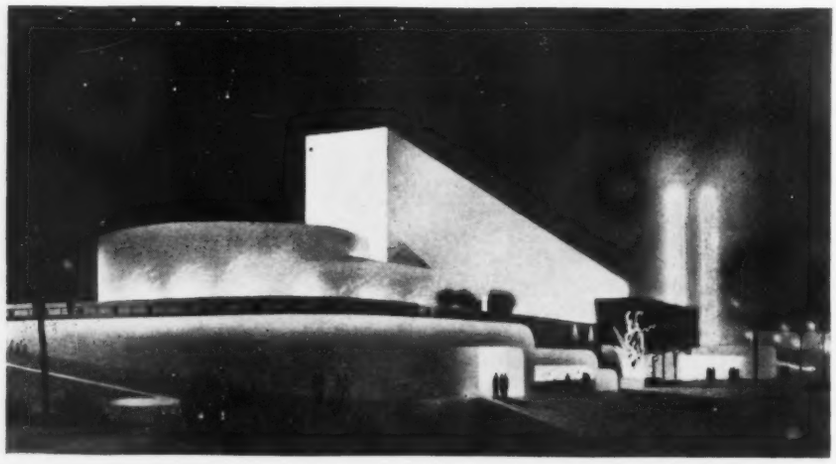
## Textile Groups at Czech Hearing

Hearings by the Tariff Commission in Washington to determine a list of goods on which the United States will consider concessions in a reciprocal trade agreement with Czechoslovakia were held during the five days Oct. 25-29. Approximately 165 witnesses appeared or filed briefs with the five-man reciprocity committee. The textile industry's witnesses came from the following branches: rugs, cotton textiles, linens, raw cotton, and knit fabric gloves.

Representatives for the Cotton-Textile Institute argued that it would be unwise to accord favor to Czechoslovakia, thereby, under the law, opening the door to Japan and other countries to further burden with low-cost imports the domestic textile industry which is already severely competitive and operating at no profit. They urged consideration of two principles: that tariff concessions should be granted only with respect to those goods of which the other nation-party to the agreement is the main or most prominent supplier; that tariff reduction should not be applied on those articles, manufacture of which is adequate for the home market and available to consumers at prices which reflect fairly the essential cost conditions.

Henry Grady, chairman of the reciprocity committee, assured the group that no move would be made that would ruin any U. S. industry.

**TEXTILE BUILDING FOR WORLD'S FAIR**



*Architect's drawing of Hall of Textiles planned for the New York World's Fair 1939. It will house an acre and a half of textile exhibits featuring machinery in actual operation, collections of period costumes, demonstrations of various handcrafts, etc. The structure will cover 68,098 sq.ft. of ground. Silks and woolens will occupy the central portion, while rayons will be located in one wing and cottons in the other. Present plans contemplated installation of a complete pilot mill to show how fabrics are made. The building will cost $325,000 exclusive of equipment. Its length will be 600 ft., its greatest width 150 ft. Foundations have already been laid and erection of the superstructure begun.*

# *Diversified Program*

## Cotton spindleage, wet finishing progress, drying temperatures discussed at A.S.M.E. regional meeting.

ADDRESSES on recent developments in wet finishing and dyeing machinery, effect of temperature in drying, and changes in cotton spindleage in this country featured the regional meeting of the Textile Division, American Society of Mechanical Engineers, held Oct. 15, in Cambridge, Mass.

Paul A. Merriam, of Riggs & Lombard, Inc., the first speaker, discussed two major trends in wet processing of woolens and worsteds—development of continuous-type finishing equipment, and application of stainless steel in dyeing and finishing machinery. An example of the first trend cited by the speaker is the Stone continuous washer. Advantages of the washer include savings in labor, water, steam, and soap; more uniform results; and versatility. An important feature of the machine is the "back and forth" principle of operation, whereby the cloth passes back and forth through the squeeze rolls at the end of each compartment, thereby being subjected to a predetermined number of alternating treatments and squeezes before it passes on to the next compartment. A second feature is the counter-current system for wash and rinse liquors. To give an uninterrupted flow of goods, in practice the washer is usually followed in range by an automatic tack puller, scutcher, vacuum extractor, and dryer.

Development of this washer (which is suitable also for continuous neutralizing after carbonizing) and the continuous dry crusher mill (T.W., Oct. 1937, p. 123), has made it possible to carry out the entire carbonizing process continuously by means of a range consisting of a saturating and acid impregnating machine, dryer and baker, crusher, washer, scutcher, vacuum extractor, and dryer.

Equipment described by Mr. Merriam in which stainless steel is now being employed includes fulling mills, washers, dye kettles, reels, and the new top dyeing machine described this month in New Machinery and Processes Section.

### Drying

B. R. Andrews, of Andrews & Goodrich, Inc., pointed out that two fundamental factors—economy and quality—enter into the determination of proper temperatures when drying textiles with air or superheated water vapor. The capacity of a dryer is highest when the relative humidity in the dryer is low. Thus, with exhaust temperatures of 180° F. and a relative humidity of 5% a dryer of given design would need to be only 200 ft. long, as compared with 258 ft. at 15% r.h. and 430 ft. at 35% r.h. However, with superheated water vapor at 280° F., it would need to be only 100 ft. long.

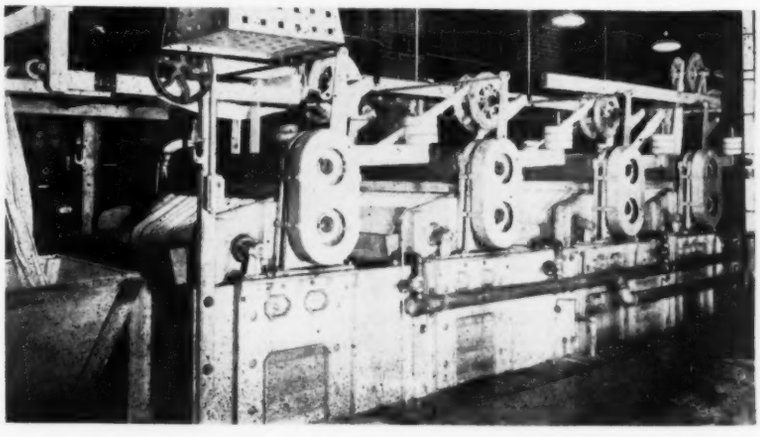
Large savings in steam are obtained by the use of high temperatures as compared with temperatures ordinarily used. The following maximum temperatures have been employed successfully in plants turning out a good quality of product with adequate air circulation in the dryer: cotton raw stock, 270° F.; wool raw stock 250° F.; cotton piece goods, 320° F.; worsted fabrics, 250° F. With inadequate circulation, the following lower temperatures have proved satisfactory; cotton stock 240° F.; wool stock, 160° F; cotton piece goods 260° F.; worsted fabrics, 180° F. Still higher temperatures and, thereby, further economies can be obtained by proper precautions.

With adequate circulation, fast drying at high temperatures gives better results than slow drying at lower temperatures, provided the material is not over-dried. Thus, samples of worsted gabardine dried from 100% to 5% moisture showed greater resistance to abrasion and took a sharper crease when dried fast at 240° F. than when dried slowly at 180° F.; also recovery from elongation is quicker with fast drying. Similarly, cotton fabrics dried fast at 320° F. show less discoloration upon ageing than those dried slowly at lower temperatures. Synthetic fibers, particularly, are dried more satisfactorily with superheated water vapor, this method resulting in better coverage and less damage.

In his discusion of cotton spindleage in this country, A. W. Benoit, of Chas. T. Main, Inc., elaborated on the paper which he presented this spring at the A.S.M.E. meeting in Greenville, S. C. (T. W., May 1937, p. 97). From 1880 to 1925 the number of cotton spindles in this country increased from 10 million to about 38 million. Since then there has been a steady decrease, until the last report shows less than 28 million. The decrease has occurred almost entirely in New England, which at the beginning of 1937 had about 6 million active spindles as compared with a high of 16 million in 1923. In the South, a high of 19 million spindles in place was reached in 1930 and has continued to date at about that figure, with approximately 18 million active.

The chief cause for the decrease in the number of spindles has been the longer hours of operation of the better spindles, and the trend of hours of operation per spindle is still on the upgrade. According to Mr. Benoit, the greatest likelihood is that the industry will settle down to two 40-hour shifts or, as an alternative, three 30-hour shifts; taking everything into consideration, the conclusion is that several million spindles are still to go out before the industry is stabilized.

*The trend toward the development of equipment for the continuous wet-processing of woolen and worsted fabrics is exemplified by the Stone continuous washer first made generally available about four years ago and now in use in several mills.*



# Changing to Flat Quills

## Presents few difficulties and saves many times moderate cost involved

By H. E. Wenrich

***Flat quills offer numerous advantages. In many cases they run twice as long in the loom, permitting weavers to tend more machines and reducing possibilities of start-up marks. The large shuttles used with them run truer and are less likely to fly out of the shed. Distribution of shuttle weight over a broader base reduces friction on the warp. Winding economies obtained through the use of flat quills include increased production, more spindles per winder girl, fewer spindles necessary for a given production, decreased doffing frequency, and fewer quills required.***

ARTICLES in TEXTILE WORLD's issues of November, 1936, and July, 1937, explain many interesting advantages obtainable through use of flat quills. I believe that, although every year brings many changes in the line of more modern machinery, this new type of quill is without doubt the greatest advancement in the silk and rayon weaving industry since introduction of the shuttle-changing loom.

Manufacturers who lacked the required capital for installation of shuttle changers now have an opportunity to convert their looms to semi-automatics at a fraction of new equipment cost. Savings on waste alone will pay for the outlay required to install flat quills within a year. Increase of 50% load on quillers and as high as 100% load on weavers will repay the cost within a few months. And there is the added benefit of reducing the number of defects in fabrics woven.

However, this article is not primarily intended to discuss profits made possible by use of the flat quill. Rather it is designed to assist fixers and helpers fully to appreciate this new development, and to act as a guide in changing over to flat quill operation.

In adapting existing looms to the handling of the large shuttles necessitated by flat quills, careful attention to small details will result in the looms giving less trouble to the fixer after they are in operation.

### Additional Parts Required

A number of additional parts are required and certain adjustments must be made. Parts required should be placed at each loom ready for the change in order that little time will be lost in going to and from the stock-room after the loom has been shut down. Better time can be made, and better results secured, if change-overs are made on empty looms, although changes can, if necessary, be made while warps are in the looms.

Parts required for the change on a 2x1, 4x1, or 6x1 loom are as follows: large shuttles; shuttle box complete, including binders, etc.; outside shuttle-box guide; rawhide picker; vibrator gear, cam, or box change gear. For the plain side are required: leather picker; box front; box top; two steel plates; two screw-head bolts with washers and nuts; two stud bolts with washers.

Should the change be made on looms such as 2x2, or other types of pick-and-pick looms having shuttle boxes of two or more cells on each side of the loom, the following parts would be substituted for those listed for the plain side: shuttle box; outside shuttle-box guide; rawhide picker; vibrator gears, cams, or change gears controlling the required lift for all boxes on this side.

When all required parts are assembled at the loom the change can be made in the shortest possible time by proceeding, in order, with each change and adjustment detailed below:

Remove the protector rod and have an extra length welded on to the dagger ends. This is necessary so that when a shuttle bangs off in the shed it will not be pinched, thus causing a smash or pinch mark. The welds must be hardened; otherwise, due to constant banging off, the dagger ends may become soft. On many looms, the box side or dead end should be $4\frac{3}{4}$ in. from rod to tip, while on the plain side or knock-off end the dagger should be at least $\frac{1}{8}$ in. longer, or $4\frac{7}{8}$ in. from rod to tip. Fig. 1 illustrates the length of daggers and point of new weld.

On some looms the necessary addition to the dagger ends may be shorter or longer than specified above, depending on the type of loom and shuttle. To ascertain the required length, take measurements from a loom in operation with a small shuttle in the shed. Bring the lay of the loom to bang-off position with the point of the protector-rod dagger tight up against the knock-off plate. Note position of the shed on the shuttle. Next, place one of the new, large shuttles in the open shed and bring the lay up to the point where the trapped shuttle starts to pinch the cloth. Measure the distance from the point of the protector-rod dagger to the extreme back position of the knock-off plate, as in Fig. 2. This is the length to be added to the points of the protector-rod daggers. (One measurement will suffice for all protector-rod dagger points from looms of similar type or looms equipped with the same type protector rod.)

After removing the protector rod from a loom, place a tag containing the loom number on the rod and proceed with the welding. This simple tagging precaution will enable the rod to be replaced on the same loom from which it was taken and will eliminate many later adjustments.

*In the second and concluding part of this article, to be published in an early issue, Mr. Wenrich will give detailed instructions concerning changes and adjustments necessary in adapting looms to flat-quill operation.*—Editor.

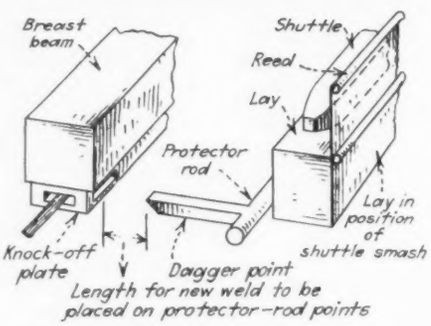



*Fig. 2. Measuring the distance from point of protector-rod dagger to extreme back position of knock-off plate indicates length to be added to points of protector-rod daggers.*

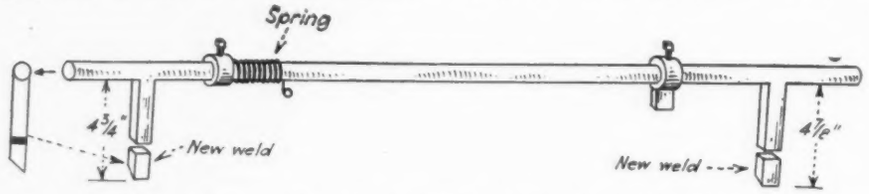



*Fig. 1. Protector rod, showing position and length of new welds to be added to dagger points.*

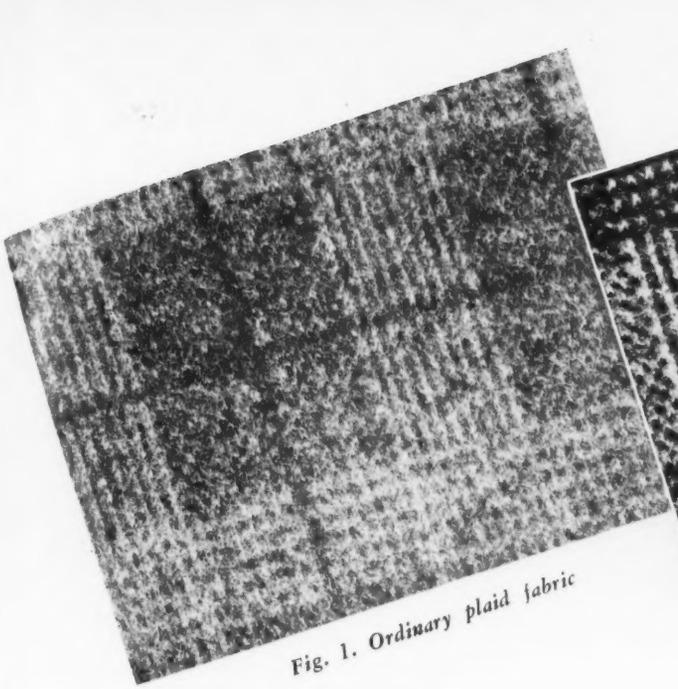


Fig. 1. Ordinary plaid fabric

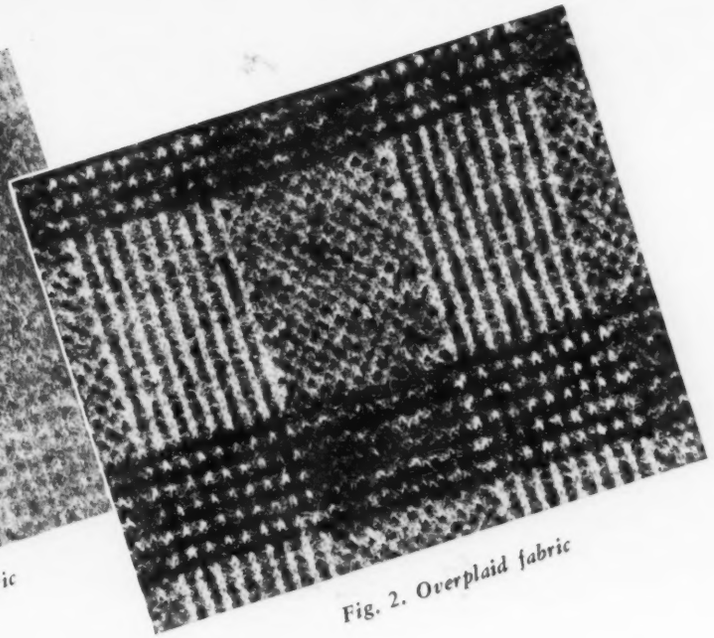


Fig. 2. Overplaid fabric

# Knit Overplaids

## Are at last in commercial production on regular leaded spring-needle machines

By George L. Logan

*Secretary, Tompkins Bros. Co.*

THE KNITTING OF overplaid on regular leaded spring-needle machines has been a long-sought goal of the knitter. It has now been successfully accomplished by the use of two-color striping attachments and by the introduction of vertical stripes of a third color through a special manipulation of backing yarns. The latter phase consists of making the backing yarns knit on selected needles and float in the customary manner on the remaining needles. What has been accomplished is shown forcefully by a comparison of the regular plaid effect of Fig. 1 with the overplaid effect of Fig. 2.

The type of machine set-up necessary can best be explained by taking Fig. 2 as an example. For this fabric the feed and pattern specifications are as follows: 16-gage, 30-in. cylinder; 990 needles; four feeds for plaid; two backing feeds for overplaid (vertical stripe); pattern, 45 wales wide; jackwheels, 90 spaces; backing wheels, 45 spaces

Fig. 3 shows the set-up for the backing wheels (2), jack pressers (6), and chains (2) for striping attachments (2). Fig. 4 is taken from an actual photograph of one-half of the machine set-up, and we shall use this illustration in describing what takes place in the knitting of this fabric. There is little, if any, special equipment required in making this cloth, unless efficient striping attachments are not at hand, since both the plaid and overplaid vertical stripes are made with backing wheels and jack pressers. Of course, the correct number of spaces must be used in the above-mentioned wheels in conjunction with the needles in the cylinder to arrive at the desired width of pattern.

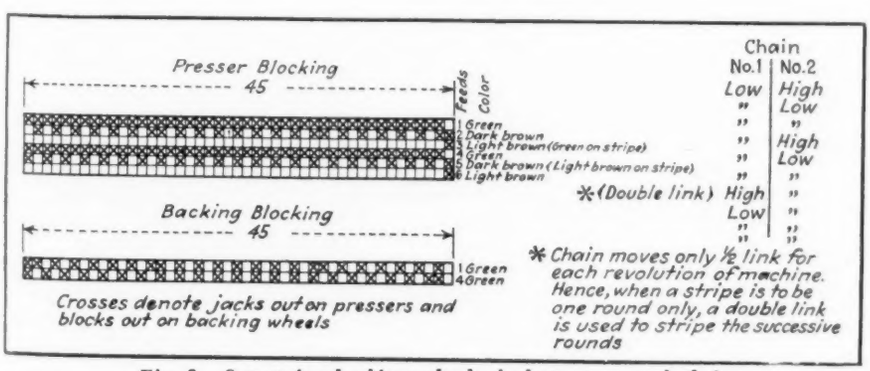

Presser Blocking
45
Feeds
Color
1 Green
2 Dark brown
3 Light brown (Green on stripe)
4 Green
5 Dark brown (Light brown on stripe)
6 Light brown
Backing Blocking
45
1 Green
4 Green
Crosses denote jacks out on pressers and blocks out on backing wheels
Chain
No. 1 | No. 2
Low | High
" | Low
" | "
" | High
" | Low
" | "
*(Double link) High | "
Low | "
" | "
* Chain moves only ½ link for each revolution of machine. Hence, when a stripe is to be one round only, a double link is used to stripe the successive rounds

*Fig. 3. Set-up for backing wheels, jack pressers, and chains for striping attachments*

### Method of Knitting

The method of knitting, referring to Fig. 4, is as follows: Starting at the left, No. 1 feed is an overplaid feed used for introducing the backing yarn into the needles in the standard way. A clearing wheel (*A*) next carries the yarn down below the ends of the needle beards, but no farther. An outside cast-off wheel (*B*) then raises the yarn back up to the tops of the needles. Therefore, at this point the backing yarn has been put *under* the needle beards of those needles pressed or blocked by the backing wheel and is *outside* the needle beards of those needles not pressed or blocked by the backing wheels. (It will be noted that no face yarn is put in at this feed.) A jack presser (*C*) then presses off every 45th needle. It must, of necessity, press off a needle having the backing yarn *under* the needle beard, or a drop stitch will result.

The backing yarn thus manipulated knits on every 45th needle and floats in and out between every 45th until it is tied in at the next, or No. 2, feed. As

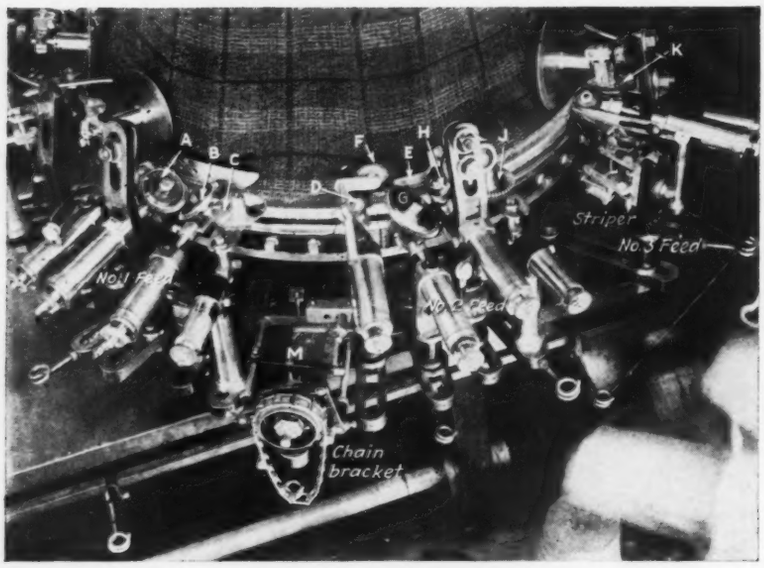



*Fig. 4. View of one-half of machine*

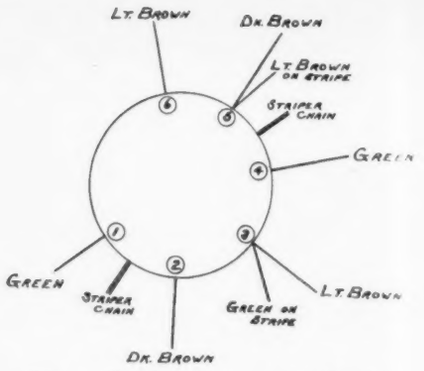



*Fig. 5. Sketch of set-up around entire machine*

the No. 2 feed is reached, an evener wheel (*D*) is employed to aid in throwing this floating backing yarn over the tops of the needles and down in back of them at the point where a cloth shoe (*E*) starts to push the cloth downward. If the yarn has a tendency toward kinking or is wiry, a circular brush (*F*) can be used to take the backing yarn as it leaves the evener and positively push it down in back of the needles for about ¼ in., where a clearing wheel (*G*) continues carrying the yarn down below the reach of the stitch wheel (*H*). A cloth shoe (*E*) is used preferably on this feed to allow clearance for the stud on which the circular brush revolves. The remainder of No. 2 feed is a regular cut-presser feed with the jack presser (*J*) laid out as in Fig. 3.

It should be noted here that the backing wheel on No. 1 feed is blocked so that the blocks coincide with the jack presser. In other words, the backing is tied in on a knitted stitch rather than on a tucked stitch in order to prevent the backing from showing through to the face.

No. 3 feed is an ordinary plain feed but with a jack wheel (*K*) to tuck behind every 45th needle. This prevents the color on No. 3 feed from breaking the vertical stripe of another color as put in by No. 1 or backing feed. A striper (*L*) is also set on this plain feed, having in its second striping finger, a yarn of the same color as on No. 1 feed. One round of this color is sufficient to match with the vertical overplaid stripe. A chain bracket (*M* shown between No. 1 and No. 2 feeds) controls the chain operating this striper.

The cycle is thus completed for one-half of the machine.

The other half of the machine is arranged the same, to complete the pattern, except that the striper is set to operate on the cut-presser feed rather than on the plain feed. It would be on No. 5 feed as shown by diagramatic sketch in Fig. 5. The reason for this is that the same colored vertical and horizontal stripes of the base plaid match only with this arrangement.

Uses for overplaid fabrics are found in the men's overcoating and top-coating lines, ladies' wear, dress goods, and sweater lines.

# *Staple Cotton Fabrics*

## Grosgrain

By John Hoye

*Fabric Technician with W. Harris Thurston, New York*

**This twenty-third instalment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the Jan. 1936, issue—concerns grosgrain**

GROSGRAIN is not widely used because of its limited application and is usually made on contract. The fabric is plain woven, similar to the poplin in appearance, with a coarser rib effect. Grosgrain is usually heavier and has a lower number of picks of coarse, heavy, single or ply filling yarns. It is also similar to a coarse rep, but is higher in construction and lighter in weight.

*Finishes used:* Usually mercerized and chased.

*Uses in finished state:* Draperies, furniture coverings, etc.

*Yarns:* Carded used; also combed.

*Warp yarns:* 36s to 40s.

*Filling yarns:* 10s, 40/2, 30/3, 80/2 (combed).

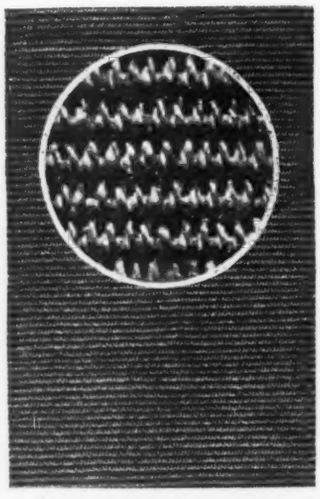
*Examples of grosgrains:*

36½ in. 110x26 2.50 yd.—two-ply warp, ply filling.

36½ in. 86x26 2.85 yd.—two-ply warp, single filling.

39 in. 144x28 3.25 yd.—all single.

59 in. 138x28 1.38 yd.—two ply warp, three-ply filling.



***Grosgrain (Finished). Gray —36½", 110x26, 2.50 yd., two-ply warp, single filling***

# *Saponifying Acetates*

## Methods and chemicals for treating fabrics to be discharge printed

By Philip LeBrun

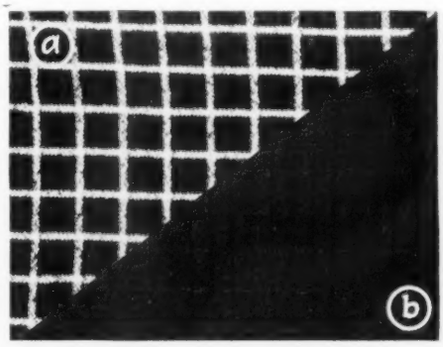
AT THE present time practically every acetate fabric dyed for discharge printing is first saponified, so that it can be dyed with dischargeable substantive dyes. The chief reason for this is the lack of a complete line of dischargeable acetate dyes. Another reason of almost equal importance is the fact that the cost of the dischargeable acetate colors in the cases where they are available will usually run higher than the combined cost of substantive dyes plus the chemicals and labor expended for saponifying the acetate. The term "saponification" is used to denote conversion of cellulose acetate to ordinary regenerated cellulose. During the conversion, the mixture of mono, di, and tri acetate cellulose loses more or less of the acetate group, so that the final product always weighs less than the original cloth. Use of some of the chemicals and mixtures of chemicals employed by various mills will be discussed in this article.

Caustic soda is probably the most commonly used chemical, and ammonium thiocyanate is possibly the least commonly employed. About 8 to 10% of caustic soda based on the weight of the cloth is usually sufficient for a complete saponification. This is used in a 20 to 1 bath at 180° for 30 to 45 min. Soda ash is used in the same way as caustic soda; but about two to two-and-one-half times as much soda ash is required to produce the same degree of saponification. Trisodium phosphate and various sodium silicates can also be employed for the same purpose. Correspondingly larger amounts are required of the latter compounds than of the former.

### Quick Test

Many mills have no experienced chemist to assist in their chemical problems. In such mills it is customary for the dyer, who usually is also in charge of boil-off, to rely on the empirical method of adding an excess of caustic soda to his scouring bath. This saponifies the cloth completely if enough caustic is used and sufficient time is taken. It is advisable to cut samples every few minutes from the cloth being treated and to make rapid dyeings by dipping for 2 min. in a hot, fairly concentrated dye pot of substantive color. The dyer can then judge when the saponification has gone far enough to give a satisfactory dyeing.

The loss in weight of an all-acetate fabric upon saponification will range from a minimum of about 8% to a maximum of 45 to 50%. As most fabrics which are saponified contain about 50% viscose and 50% acetate, the usual losses in weight will range from 4 to 25%. This means that the saponified printed cloth is much thinner in handle than a similar fabric which is piece-dyed without saponification. Therefore it is frequently necessary to add fillers to the finishing mixture used on the cloth, in order that the weight will be more nearly that of the piece-dyed or application-printed fabric usually submitted for a finish type. Strange to say, a different method of saponification will result in a different handle to the cloth. Acetate goods treated with soda ash solutions will generally be harsher in feel than the same fabrics treated with caustic-soda or trisodium phosphate, even though the fabrics may be saponified to the same extent.




*Viscose-acetate fabric—a, original material dyed with substantive dye; b, material saponified and dyed with same color used for a.*

Ordinary rule-of-thumb methods will produce a cloth in which the converted acetate and the viscose dye to slightly different shades. The more rapid the conversion, the darker will be the saponified acetate and *vice versa*. Unless carefully controlled, each separate lot will dye slightly different. The following formula has produced uniform shades in both viscose and saponified acetate without any marked change in the original luster on successive lots: 2 lb. of caustic soda flakes (commercial 76%) and 8 lb. of trisodium phosphate are dissolved in 100 gal. of water. The cloth is treated in this solution for 1 hr. at 140° F.

One bad fault after saponification is the decided difference in luster between the viscose and the saponified acetate. This is beneficial in the case of jacquard patterns and is of no harm in most all-over patterns. However, in designs which have small well-spaced figures, it is a decided disadvantage to have a difference in luster between the two fibers, as this causes an uneven appearance. Use of sodium phenolate for saponification will do away with most of the difference in luster if it is used in proper concentration. A practical working formula consists of 2 lb. of phenol dissolved in water and slowly poured into 4 lb. of commercial 76% caustic soda flakes dissolved in water. The mixture is stirred slowly for a few minutes and is then ready for use. As the reaction between the two chemicals causes a considerable evolution of heat, fairly large open pails or barrels should be used for mixing. In addition, it is best to cool both the phenol and caustic solutions before mixing them together. The resulting sodium phenolate is poured into 100 gal. of water containing 4 lb. of trisodium phosphate. The cloth is treated with this solution for 1 hr. at 180° F.

### Mechanical Handling

The mechanical handling of the cloth is fully as important as the chemical treatment. The ordinary "skein" boil-off will not do for this purpose, because of the difficulty of obtaining sufficient penetration to all parts of the "skein." This may result in blotchy and unevenly dyed goods. Full width continuous machines are therefore recommended for saponifying acetates. An alternative, when these are not available, is to give a partial boil-off in the "skein," using the usual soap bath. The boil-off is then finished in the dye box, using any of the above-suggested formulas. While much of the sodium hydroxide or other alkali used is neutralized—that is, converted to sodium acetate during the treatment—the writer believes that it is best to pull the plug and rinse the goods, rather than attempt to dye in the same bath.

Properly saponified acetate fabrics should not show any cross-dye effects after dyeing. In addition, unless the cloth is such that the pattern will hide any differences in luster or unless the differences in luster are beneficial, such as in small jacquard patterns, the fabric should be treated so as to produce equally dull fibers.

# *Spun Rayon Yarn*

## is easy to produce on the cotton system if basic rules are followed

By Harold T. Heathcote

*Victor Ring Traveler Co.*

THE SPINNING of cut rayon or staple fiber is something similar to and yet quite different from the spinning of any other fiber. The unusual fact that all of the fibers in a lot have similar characteristics of diameter and length, due to their synthetic construction, must be kept in mind at all times. The following facts and suggestions should not be considered as hard and fast rules, but rather as a starting point or aid in the manufacture or contemplated manufacture of yarns from staple fiber.

The fiber most commonly used for spinning is 1½-deniers, 1½-in. staple of the viscose type; and this discussion applies to fiber with these specifications. The density of a mass of such fibers is greater than that of natural fiber, and this must be taken into consideration in all phases of manufacture. Also, it is emphasized that as much care should be taken in opening and running a new lot of staple rayon as would be exercised with any other fiber.

The first rule to be observed throughout the processing of staple rayon is proper regulation of temperature and humidity in all operations. The fiber is latent with static electricity and is aptly called "thirsty," due to a natural affinity for moisture.

### Pickers

The picker room should have a temperature of 70° F. and a relative humidity of 60%. If proper temperature and humidity are not maintained, the fibers will cling to metal parts and cause bunchy, uneven laps. It must be remembered that the picking operation is not one of cleaning, but merely a desirable way of preparing the staple for subsequent processes. The staple should be opened and fluffed for 24 hr. whenever possible.

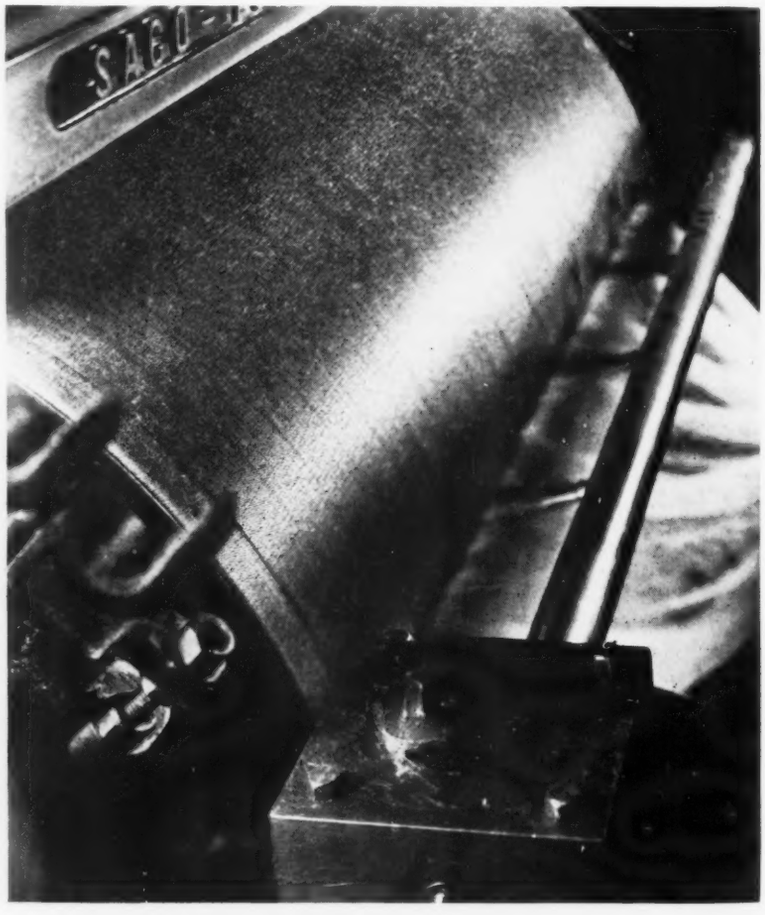
For picking it is advisable to use a bale opener and a one-process picker equipped with double beaters of the Kirschner type. A beater speed of 500 r.p.m. and a fan speed of 1,000 r.p.m. are recommended. Set the grid bars to the beater at ⅛ in. and make lap weight approximately 12 oz. per yd. The fan speed of 1,000 r.p.m. may be varied to bring the material to the cages in proper form. Also 4 to 6 rovings run in at the calender roll with a split-lap preventer will eliminate split laps. It is a good idea to cover front cleaning bars and to leave grid bars open. Due to the density of rayon, the hopper feed must be watched and speed set accordingly.

### Cards

If the card is in condition to run a good grade of cotton, it can be used on staple rayon with very few changes. Temperature should be kept at 70° F. and humidity at 55%. In some cases it is advisable to change tension gear if sliver runs slack. These changes in tension of web and sliver may be caused by either temperature or humidity variation. The card should be stripped at both cylinder and doffer every 5 hr. The lickerin is run at 340 r.p.m. Set short-nosed feed plate at 0.015 in. and flats at 0.022 in. Flats should be run between 1 and 1¼ in. per minute. Spiral brush is speeded up in proportion. Production should be between 250 and 300 lb. per 40-hr. week. Flat strips should be between 1 and 2%, and may be reworked. Fly waste runs 0.2%. Draft is between 100 and 105. Incidentally, there is nothing to be gained by covering lickerin or cylinder screen, as waste will come out the side of the card if not allowed to drop through.

The drawing frame requires careful watching, as temperature and humidity have considerable effect on weights. Sizings should be frequent in order that weights may be kept as nearly uniform

*"Changes in tension of web may be caused by either temperature or humidity variation."*



as possible. This should give a uniform weight to the back stock. Also, it is much easier to control weights in succeeding operations if this condition is taken care of in this operation. Temperature is kept at 75° F. and humidity at 50%.

Care should be taken during oiling, as oil spoils the fibers. Top and bottom clearers, as well as the frame, should be cleaned at every doff. Coiler and spectacle are taken out and cleaned frequently as there is a tendency for lint to accumulate at this spot. Rolls should be scoured every four weeks. Use leather on all lines of rolls. Keep tension on slack side, and draft between 5 and 5½ on each process. Front-roll speed should be 250 r.p.m. Roll settings are as follows:

First to second—¼ in. over length of staple. Second to third — ⅜ in. over length of staple. Third to fourth—½ in. over length of staple.

In later operations excessive drafts are to be avoided, due to the natural bulk or density of fibers in the cross section of the sliver. Drafting should be a gradual elongation of the sliver in all of the following processes.

### Slubbers

The weights on slubbers should be watched very closely as a check on what might get by the drawing frames. However, if the foregoing suggestions have been followed up to and including this process, a roving should result that will insure ideal spinning, even drafting, and eventually a quality yarn.

The frame should be cleaned thoroughly at the doff—especially flyers, clearers, and roller beams—to avoid bunches. Use paper tubes to keep sliver from being stained by either oil or shellac from bobbins. Also operatives should be taught to use whiting on the finger tips when piecing ends. Run tension as slack as possible to prevent stretching. It is advisable to have slots in hollow leg of flyer a trifle smaller than is common on cotton. This enables use of a slacker tension, which in turn helps to keep roving from being stretched. This applies to all fly frames. Use cork rolls on back lines and leather on front lines. Spindle speed should be 450 r.p.m. on a 12x6 frame. On 0.50-hank roving there are 0.59 turns per inch. Rolls settings are as follows:

First to second—¼ in. over length of staple. Second to third—⅜ in. over length of staple.

### Intermediates

All rules for slubbers apply to intermediates. It is advantageous in this process to employ either glass or plated creel rods to present a smooth surface to the sliver, which in turn prevents bunches from accumulating and passing into the roving. Operatives should be instructed to piece up in creeling 1½ in. from the end to prevent thin places in the roving. Spindle speed is 625 r.p.m. on a 10x5 frame. Roll settings are as follows:

First to second—¼ in. over length of staple. Second to third—⅜ in. over length of staple.

From this point on, skewer points and creel steps should be checked to make sure the roving is not stretched by excessive tension due to the bobbins turning resistingly.

*"Cleanliness and careful piecing of roving in the creeling operation should be the watchword of the spinner."*

### Fine Frames

The same rules applying to preceding operations of fly frames should be observed on fine frames. Spindle speed is 1,000 r.p.m. on 7x3 frames. Twist per inch on 3-hank roving is 1.492; on 6-hank roving it is 2.31. Rolls settings are as follows:

First to second—3/16 in. over length of staple. Second to third—5/16 in. over length of staple.

The foregoing can be changed to suit local conditions and, as previously mentioned, is intended merely to be a guide or starting point.

### Spinning Frames

In the spinning operation temperature and humidity control are of the utmost importance in transforming the roving into a perfect yarn. Cleanliness and careful piecing of roving in the creeling operation should be the watchword of the spinner. Here again glass or plated creel rods should be used to overcome the tendency for bunches to accumulate and pass into the yarn. Glass or porcelain steps in the creels, as well as skewer points, should be watched closely so as not to put undue strain on the roving and cause it to stretch. Excessive spindle speed and rail speed should be avoided so as not to put undue strain on the yarn, and also to prevent excessive fly waste.

It is just as important to watch out for oil and shellac strains at this process as at any other process. Traveler cleaners properly set will do much to prevent undue loading of the traveler and excessive tension on the ends. These also do their bit towards the elimination of bunches. Clearers should be cleaned every 2 hr. at least, and all flannels should be in place and in good condition. It is advisable to have as much cleaning as possible done on each frame at the doff. Top rolls should be cleaned and oiled regularly, and worn cap-bar nebs should be replaced to keep roll settings uniform.

Maximum breaking strength seems to be obtained by using between 2.75 and 3.50 as a twist multiplier, depending largely on the yarn number. Avoid the use of reworked waste, and keep fly from other fibers from entering the work at all points. This will overcome a lot of trouble in the finished product. Finally, if the same general rules and care are exercised in the manufacture of spun rayon as in the manufacture of long-staple cotton on fine numbers, very little trouble will be experienced and a good product should be the result.

# *Eighteen Hosiery Mills*

## Established at Hickory, N. C., since 1930

SEVEN new knitting mills were established either within or adjoining the city limit of Hickory, N. C., during the last year, bringing the total to 30 now in operation. Of the 30 mills, 18 were organized and put into operation since 1930, and others in the years immediately preceding. The mills at Hickory have an annual production of 7,000,000 doz. pr. hose, mostly of the cheaper grades of circular-knit half hose and anklets. Some 4,000 persons are employed, and the annual payroll runs into millions.

There are other manufacturing centers in the South which produce a greater volume of hose, such as Burlington, High Point and possibly Chattanooga, but there is none which has shown the phenomenal increase in number of establishments that Hickory has since the depression. A check of textile-mill directories shows that at the beginning of 1930 there were around 2,000 circular knitting machines in use in ten different plants. Today, the number has grown to about 3,000 machines making goods similar to those of the original plants, the additional 1,000 machines being distributed among the eighteen new plants as well as the older mills. This indicates that the new mills are rather small, averaging perhaps 50 machines each. Actually, the number ranges from 20 to 175 per plant.

Plants constructed in and around Hickory since 1930, according to the best records available, include Brown Bros. Hosiery Mill, Catawba Hosiery Mills, Ellis Hosiery Mills, G. & H. Hosiery Mills, Goodman's Hosiery Mill, Hafer Hosiery Mill, Hicks & Johnson Hosiery Mill, James Knitting Mills, Kramer-Hollar-Brown Corp., Knit-Sox Hosiery Mill, McKinney Hosiery Mills, Nu-Silk Knitting Mills, Piedmont Hosiery Mills, Paxton Hosiery Mills, Presslar Hosiery Co., Sterling Knitting Mills, Viewmont Knitting Mills, and Walton Knitting Mills.

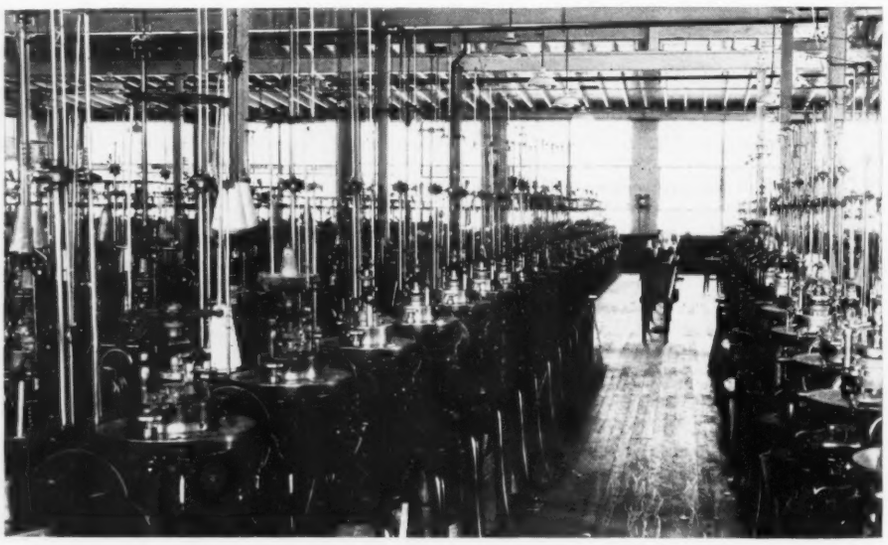
The Knitting industry at Hickory started in 1910 with establishment of Elliott Knitting Mills, Inc., which is today the largest firm in the city. It has a listing of 650 circular knitting machines, and is understood to produce daily about 5,000 doz. pr. men's women's and children's hose made from cotton, rayon and silk. Lyerly Full Fashioned Mills is under the same management, and is the only full-fashioned plant in the vicinity. Next to Elliott in size, probably comes Whisnant Hosiery Mills with a rating of 400 circular knitting machines. An interesting thing about this plant is that it was established in 1929 in a small frame building, and experienced its greatest growth during and after the depression.

With one or two exceptions, all the hosiery mills in Hickory are locally owned and operated. Most of them are family institutions with the more important executive offices held by members of the same family. Many were started up by persons previously employed in one of the other mills. The local banks are instrumental in financing many of the ventures, and are very closely tied in with the industry. As to merchandising, practically all of the goods are made and shipped in the gray to finishing plants elsewhere, which in turn ship them to wholesale outlets. There are one or two small finishing plants at Hickory, but they have not yet developed sufficiently to have a real effect on the local situation.

Nearly every one of the mills operated profitably during the depression, and on until the present time. In fact, as previously mentioned, it was during this period that nearly 20 of the 30 plants were established. There are a number of reasons why this was evident. In the first place, market conditions in the cheaper lines during the depression were probably better than in the more expensive lines. Second, and perhaps most important, manufacturing costs were and are undoubtedly lower in Hickory than in some of the older established centers.

An analysis of manufacturing costs shows that probably the outstanding advantage of those mills established in recent years is the low capital investment. In nearly every instance, second-hand machinery was purchased and is operating in inexpensive buildings. Wage rates compare very favorably with other sections of the South, and there is an ample supply of intelligent native white labor. Power can be secured for manufacturing purposes as low as 1.2c. per kw.-hr., with demand discounts as high as 40%. There are other rates as low as eight mills with fixed demand charges. Tax rates are low, and new industry is encouraged by the municipal government. Most of the employees live in their own homes or on farms, and general labor conditions are said to be good.

As to the future of the hosiery industry at Hickory, there is no reason why it should not continue to grow and expand as long as market conditions are favorable for the particular type goods made there. A protracted slump in the circular-knit field would undoubtedly mean the end of many of the small firms which have mushroomed up in recent years. However, the stronger of these would probably survive and develop into very efficient unit. There seems to be no trend toward establishing full-fashioned machines in the area, probably because of the expense involved and the skilled labor necessary for this type manufacturing. There is no reason though why full-fashioned hosiery should not be made at Hickory, beyond the fact that there are innumerable small towns in the Piedmont Carolinas which offer just as good conditions.



*Manufacturing room of Hickory Hosiery Mills, Inc.*

ADVERTISING PAGES REMOVED

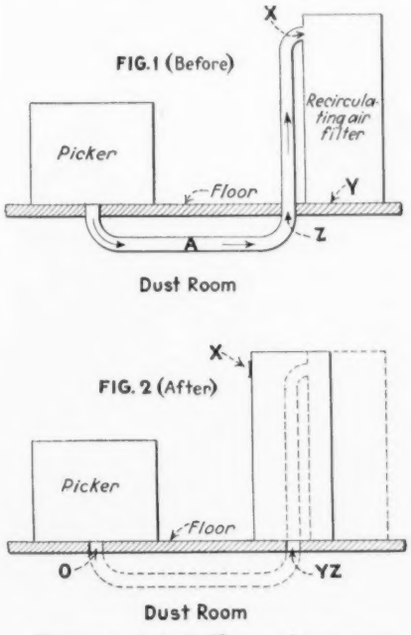


# Overseers' Practical Helps

## Dust-Filter Efficiency Increased by Rearrangement

Mills laid out with the dust room beneath or adjacent to the picker room will find it worthwhile to study a plan of machinery arrangement worked out by a large southern mill, as observed by a TEXTILE WORLD reporter during a recent visit there.

Each picker was originally attached to a recirculating air-filter, as shown in Fig. 1. Deciding that more efficient cleaning could be accomplished by a simple rearrangement of the machinery set-up, the supervisory staff asked the mill shop to remove pipe A completely, and plug up opening X where the pipe entered the filter box. A hole the size of pipe A's cross section was then cut in the bottom of the box at Y. The next step was to shift the filter box several inches to the left so that the new opening Y coincided exactly with Z where the pipe formerly went through the floor. Fig. 2 shows the new position of the filter box as compared with the original position (dotted-line outline).




*Rearranged dust filter reduces number of necessary cleanings by two-thirds.*

The described changes being made, dust which formerly entered the filter through pipe A now is blown directly through opening O into the dust chamber, where it has a chance to settle before the air is drawn up through YZ. Chief advantages are that the filter has to be cleaned only one-third as often, and less back-pressure forms between cleanings. The changeover obviously is very inexpensive, and can be made in minimum time by any ordinary mechanic.

## Differs From Cobert on Slur-Cock Setting

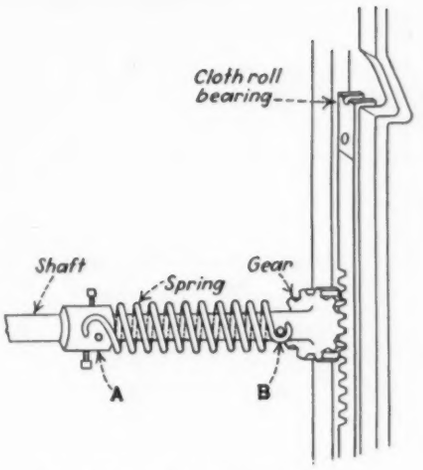
In the article by A. J. Cobert, in March, 1936 issue, he advised milling or shaping worn vergeplates, and C. O. Simms, in April, 1937, recommended filing. Grinding is better than the other ways, since only a very expert man could do a passable job with a file alone. Therefore, it seems that a fixture might help.

Mr. Simms has some very good ideas on vertical stripes, but his paragraph on slur-cock setting is not correct. The working face of a slur-cock is approximately $\frac{7}{8}$ in. wide, and after it passes a jack there is nothing to hold the jack forward but grease on the old machines and jack springs on the new ones. It is highly improbable that a slight rebound of the sinkers ever drew the yarn back from between the needles. It is true, however, that if the sinkers rebound much they permit the twist in the yarn to disturb the yarn in the needles so it will not divide properly. The sinkers are impelled by the action of the slur cocks and cannot "move sluggishly" as stated. If a jack or a sinker is bent or for any other reason does not move freely, the sinker will not be driven quite to the vergeplate and a tight line will result. In theory it would be best if the slur cocks carried every sinker to the vergeplates, but the constant hammering would soon destroy the vergeplates. Therefore, it has been found best to allow a clearance of the thickness of a divider of the same gage. Filing or packing of needle-bar hinges only serves to set the needle bars at a wrong angle.

WALTER A. SIMOND,
New Hampshire.

## Fixing Soft Cloth Rolls

In three of four weave rooms worked in at various times by the writer there was much loss of time and cloth spoilage due to "soft cloth rolls" or "weak springs." This condition is often tolerated because the fixers find such trouble tough to overcome. It is not uncommon for a good fixer with regular tools to spend half an hour or more fixing soft cloth rolls. Yet the use of a simple little trick, stumbled on by the writer, will after a little practice cut fixing time to one minute. No tools are needed.




*Soft cloth roll (weak springs) can be fixed in one minute.*

The first step is to retard the shaft as far as it will go by turning the crank to the left. This crank assembly is made to turn the shaft two complete revolutions, no more. When this is done, the cloth-roll bearing is brought past the position shown in the sketch with the spring ends or hooks away from their points A. One or the other of these points will be off as much as a half turn. In order to "snug up" the points into position, the gear is grasped in the hand and pulled out of mesh, after which it is turned until the spring ends are in position B. During this last operation the cloth-roll bearing is held upright to the desired height by means of the fixer's toe. The gear is then permitted to slide back into mesh.

When complete, the cloth-roll bearing

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should be in the position illustrated. The procedure is repeated on the other side.

O. J. DUCHARME,
Pascoag, R. I.

### Inspection System for Looms

It is surprising how many mills spoil whole pieces of cloth because of the lack of a system of carefully inspecting new warps. It is taken for granted in too many places that everybody has done his work right—enterers, pattern makers, spare hands, and fixers. We all know that mistakes are found every day, but the trouble is that they are corrected too late. In many shops, the defects are only seen after the first cut is off the loom, and the second cut well on its way to completion.

The way to avoid many such "lengthy" errors is very simple, and is practiced in most well-run mills. By cutting off the first 6 to 12 in. of cloth woven on a new warp and having it inspected by a competent man before the loom is allowed to proceed, the following points can be quickly checked: width, pickage, wrong filling, wrong weave, mistakes in dobby chain, wrong edges, filling tension, warp tension, sprained reed, mis-reed, ends out, ends on wrong shaft, right and left ends in wrong positions, double ends, defective ends, chafed ends.

If the sample is all right, and at least 95% should be, each can be inspected in a few seconds by a man who knows what he is looking for. Those with mistakes will take longer to check, of course, but the time taken may well be overlooked if a hundred yards of cloth are saved on each.

A further check may be made by boiling-off the sample if the warp contains right-and left-twist ends, as such ends if misplaced are sometimes more noticeable than in the raw. And it is sometimes advisable to cross-dye the sample if the warp contains a mixture of viscose, acetate, silk, or other fibers. In any case, there should be a thorough examination of the cloth before many yards are woven.

W. F. PARRY,
Pennsylvania.

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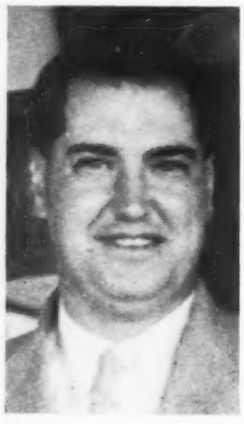
# *Preparatory Processes*

## Are featured at Eastern Carolina S.T.A. meeting

PREPARATORY processes for cotton and rayon yarn were discussed by the Eastern Carolina Division of the Southern Textile Association at its fall meeting held Oct. 9 in the community house of Erwin Cotton Mills Co., West Durham, N. C. The meeting was called to order by J. L. James, superintendent of No. 1 plant of Erwin Cotton Mills Co., who introduced the first speaker, P. B. Parks, Sr., manager of Nos. 1, 4 and 6 plants of the same company. Following a brief address of welcome by Mr. Parks, the meeting was turned over to J. V. McCombs, superitendent of Pilot Mills Co., Raleigh, N. C.

The subject of carding staple fiber came in for a great deal of discussion, and Virgil E. McDowell, overseer of carding, Rosemary Mfg. Co., Roanoke Rapids, N. C., reported the following settings as having been used successfully: doffer to cylinder—0.007 in., lickerin to cylinder—0.007 in., flats to cylinder—0.010 in., feed plate to lickerin—0.012 in., cylinder speed—65 r.p.m., doffer speed—6 r.p.m., lickerin speed—385 r.p.m. The top flats should be run as slowly as possible, approximately 1 in. per min.; and the top edge of the stripping plate should be set to get the least amount of strips. Adjusting comb or increasing speed of calender rolls will correct sagging webb. A solid cylinder screen causes the rayon to fly out at the sides.

J. L. Brannon, overseer of carding and spinning, Durham (N. C.) Cotton Mfg. Co., added that he sees no reason for use of the solid screen, as it tends to produce uneven, weak yarn. In picking he uses a carding beater set about 3/16 in. away from the feed roll, operating at 600 r.p.m. Fan speed is approximately 1,100 r.p.m., due to the fact rayon is heavier than cotton. He did not see why anyone should have trouble with 1½-denier rayon, as he finds it easier to run than cotton.



*P. B. Parks, Jr., who took part in discussion*

Long-draft spinning rolls require much more cleaning than rolls on conventional spinning, according to P. B. Parks, Jr., superintendent of No. 5 plant of Erwin Cotton Mills Co. Elaborating, he said that on coarse goods he takes out steel rolls and thoroughly cleans them about every seventeen weeks, as compared with once a year on the old system. Paradoxically, the rolls get dirtier with an overhead cleaner than without, but the roving is kept cleaner. Top rolls are picked once every 80 hr., front steel rolls are picked every 40 hr., and back steel rolls are picked every 80 hr. Belts, which are more exposed than in the ordinary mill, are picked by hand once a week. Ends are torn down three times a year, and top and steel rolls scrubbed. Leather belts are cleaned thoroughly at this time. The frame, in general, is cleaned just as though it were to be lined and leveled. R. A. Hughes, overseer of spinning, winding, and warping at the same plant, added that broken cots are replaced with the aid of a special glue. A clamp is used to hold the cot in place for a moment before the roll is allowed to run. Underclearers are cleaned once a month on 30s; every two months on 45s.

It is not necessary to change aprons on long-draft, in order to scour the roll, asserted A. W. Faris, overseer of spinning, No. 4 plant of Erwin Cotton Mills Co. He simply pushes them back out of the way. Mr. McCombs has his spinner put a string through the apron when removed so as to assure its being put back in the right direction.

### *On Roll Coverings*

Synthetic roll coverings were the basis of a long series of arguments as to the merits of the various types in comparison with the usual coverings. Consensus was that most of the present rolls need further refinement, although many of them give excellent service under certain conditions. Chief objections were eyebrows and hardening over the week end. One member reported that he has been running a "white" roller on an intermediate for four months without buffing and that it is giving excellent results. Mr. Faris mentioned a synthetic covering he has on spinning rolls which he described as "a blessing to both spinner and carder." Hard ends do not seem to affect it in the least, he said. The chairman told of some black rollers which he has been running for six months on roving without buffing. He has a different make of "black" roll on a spinning frame which has been running 6,000 hr. without buffing. Several members reported that dropping weights over the week end eliminated much of the difficulty in starting up on Monday.

With reference to traveler life, W. H.

Miley, Jr., superintendent of No. 2 plant of Erwin Cotton Mills Co., said that travelers last about 80 hr. on coarse numbers, 2½-in. rings, 9-in. traverse, filling wind. On combination wind the best he can get is 64 hr. Mr. McCombs reported that on 9s to 20s, singles roving, 8½-in. stroke, 2¼-in. ring, 4-oz. package, 8,600 r.p.m. spindle speed, 24-hr. operation, he changes travelers once a week or every 120 hr. D. F. Lanier, superintendent of Oxford (N. C.) Cotton Mills, said that with a 7½-oz. traverse, 2⅛-in. ring, 4-oz. package, square-point traveler, he changes every 80 hr. rather than attempt to prolong life of traveler and increase ends down. Mr. Parks, Jr., added that he gets 96-hr. service out of travelers operating on a 2¼-in. ring, 8¾-in. traverse, 7,700 r.p.m. spindle speed, 7½-in. stroke, and 6-oz. package.

J. W. Cates, superintendent of Edenton (N. C.) Cotton Mills, reporting on elimination of processes due to installation of long-draft, said that with one process of roving out he makes 26s and 30s with a 9,500 r.p.m. spindle speed, 135 to 145 r.p.m. roll speed, 2in. ring, 7¾-in. traverse, 4⅛-oz. bobbin, 18 draft on 26s, single-creel roving, 1.70 hank, 1-in. cotton. He has an end breakage of about 30 per 1,000 spindles. Mr. Parks, Sr., added that he is installing long-draft spinning and eliminating one process. Drawing sliver goes in at the back and comes out 2.80 at the front. It is doubled in spinning. Spindle is operated at nearly 10,000 r.p.m., ring is 2-in., front-roll speed is 142, and ends down average 22 to 24 per 1,000 spindles.

There was some difference in opinion as to the amount of twist necessary after installation of long-draft equipment. Mr. Brannon advocated less twist in roving. Mr. Cates said that he had eliminated one process of roving and is using the same twist he had previously. The chairman added that with long-draft slubbers he is running .90 hank and 1.24 hank with a draft of 6.90 to 7.55. His twist multiple is 1.28 on the .90-hank roving and 1.32 on the 1.24-hank roving.

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# *Personnel and Machine*

## Problems considered at N.C.-Va. meeting of S.T.A.

THE increasing importance of progressive personnel management in the operation of modern cotton mills was emphasized at the fall meeting of the Northern North Carolina-Virginia Section of the Southern Textile Association, held Oct. 16, at Sedgefield Inn, near Greensboro, N. C. Technical problems were also discussed. L. J. Rushworth, of Riverside & Dan River Cotton Mills, Inc., Danville, Va., chairman of the group, presided. The keynote of the meeting was struck by Edwin M. Holt, manager of No. 3 plant of Erwin Cotton Mills Co., Cooleemee, N. C., and president of the Southern Textile Association, when he said that it is vitally important that "we recognize and respect the personality of the worker in the mill."

Elaborating on the importance of human values in mill operation, Mr. Holt pointed out that a universal trait of mankind is the desire to be appreciated as a part of the organization for which he works. The employee wants to feel that he is growing in progress as he grows older in years. The usual visible evidence of progress is in the form of promotion and increased pay. Yet for those wrokers who are unsuited for additional responsibility there is hope in that they can be made to appreciate the importance of their job rather than look on it as deadly routine. In closing, Mr. Holt urged the supervisors not to give inconsiderate orders or curt reprimands. It is always advisable where possible to explain the "why of things," as such a procedure makes the worker feel he is appreciated.

### *Organized Personnel Departments*

The next address was on "The Need for Organized Personnel Departments in Textile Plants," delivered by J. O. Thomas, personnel manager of Marshall Field & Co., Manufacturing Division, Spray, N. C. "The textile industry has been rather slow to set up departments specializing in personnel administration," he said, "but from my eighteen years of experience in various phases of work in the industry, I cannot see, frankly, how a firm of any size can get along successfully without some form of organized personnel work."

Some of the major activities of the personnel department, pointed out Mr. Thomas, are "developing source of labor supply and selecting the right type of workers for various jobs in the plant, hiring employees and training them in order that they may develop into efficient workers and good citizens, and seeing that transfers and promotions are given as promptly as possible to employees who merit such changes." Other services which this department can promote include safety programs, group insurance and hospitalization plans, library service, athletics, clubs, etc.

*L. J. Rushworth, general chairman*

A spirited discussion of problems dealing with mill operation followed the more formal addresses. L. V. Andrews, superintendent of Martinsville (Va.) Cotton Mill, presided over the carding and spinning session.

A number of members cited experiences with the new synthetic coverings for rolls used in spinning and other processes. Consensus was that the manufacturers of these coverings are on the right track, although there are yet a number of technical difficulties to be ironed out. One of the chief objections to most of the synthetic materials was that they tend to harden when the mill cools over the week-end. Other objections were that some types produce excessive eyebrows, become slick with buffing, or tend to groove under certain conditions. J. O. Cole, of B. F. Goodrich Co., suggested that the problem of excessive eyebrows could be greatly helped by covering the top clearer with a smooth piece of sheep, tanned calf, or paper to reduce the cooefficient of friction. He also said that a new synthetic covering has been successfully tested in a room at 40° F.

With reference to long-draft roving, J. L. Fonville, superintendent of King Cotton Mill, Burlington, N. C., reported that on a frame making 15s and 12s singles yarn—with the front roll and two back rolls cork, second roll Casablancas type, 64-grain sliver, 20% wool, 1.85-hank roving—the 15s tested 17 lb. stronger than conventional yarn of the same size and the 12s tested 33 lb. stronger. A number of other members said that they had experienced similar results with long-draft roving. One or two said that while the yarn is stronger, it is not as even as similar yarn made conventionally.

### *Spinning Cut-Staple Rayon*

There was a tremendous amount of interest in the subject of spinning cut-

staple rayon. J. L. Brannon, overseer of carding and spinning at Durham (N. C.) Cotton Mfg. Co., said in brief: Set card same as for good-quality cotton. Leave out solid screen. Set stripper plates as close as possible. Put comb on back, and return strips for some goods—but not for voiles. Change picking arrangement by cutting off all but 2 ft. of finishing picker and putting hopper on rear. Replace pins with finer ones set closer. Put wider belt on evener. Replace blade beater in picker with carding beater. Set blade at 600 r.p.m., and grid bars as close as possible. Take friction off lap pin, which is turned down and tapered to ¼ in. at end to avoid big-end lap. Remove mote knives under lickerin on card. Set lickerin at 300 r.p.m., doffer at 6 r.p.m.

Weaving problems were next considered, with J. R. Copeland, superintendent of E. M. Holt Plaid Mills, Burlington, in charge of the session.

Several members reported installations of the new energy drive on looms. Consensus was that the drive shows distinct possibilities, but probably needs additional refinement. Increased speeds of 10 picks on Model-E looms were cited.

Wavy marks on rayon or silk cloth were said to be due primarily to improper temperature and humidity of weave room, to improperly fixed looms with particular reference to take-up and let-off, and/or to stretching the yarn in previous processes.

The subject of cleaning looms brought out two schools of thought—those who use the air hose and those who do not. Several members insisted that an air hose properly used by a trained operator will clean a loom satisfactorily without blowing oil or fly into the work. Others asserted that the only way to clean a loom in operation is with a brush, later giving it a thorough cleaning after the warp runs out. At Riverside & Dan River Cotton Mills, a screen is placed around looms while they are being cleaned, and air is used only on the drop wires.

Several methods of preventing reeds from rusting while stored were offered. One of the causes of rust was said to be the condition of the atmosphere, which should not be too moist. The best procedure seems to be to clean and oil reeds thoroughly after removal from the loom by means of a brush furnished by reed manufacturers. They then are put into a paper sack and stored in a dry place.

*Officers Elected*

New officers elected included: W. J. Jennings, overseer of carding and spinning, Minneola Mfg. Co., Gibsonville, N. C., general chairman; L. V. Andrews, Martinsville, Va., vice-chairman; J. O. Thomas, Spray, N. C., secretary (reelected). T. C. Begram, G. H. Mahaffee and W. A. Hunt were made members of the executive committee.

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# Reorganized S.C. Section

## of S.T.A. holds first meeting

THE reorganized Western South Carolina Division of the Southern Textile Association held its first meeting Oct. 23 at Greenville, S. C. Carding, weaving and spinning problems were discussed. In the future the division will be divided into (1) weaving and slashing and (2) carding and spinning groups, and a separate meeting will be held for each.

Joseph C. Cobb, general superintendent of Chiquola Mfg. Co., Honea Path, presided over the meeting as general chairman. S. Marshall Beattie, president of Piedmont Mfg. Co. and Woodside Cotton Mills Co., as well as the Cotton Manufacturers Association of South Carolina, made a brief address. He was introduced by A. H. Cottingham, general manager, Victor-Monaghan Co., Greenville.

Speaking on "The Human and Mechanical Side of the Textile Industry," Mr. Beattie praised the changed attitude of management with reference to employee relations, and urged application of courtesy and understanding in the handling of workers. Regarding machinery, he outlined the development of modern textile equipment and methods, and prophesied further technological improvements.

*Carding*

The carding discussion was led by Robert T. Stutts, superintendent of the Simpsonville plant of Woodside Cotton Mills Co.

Speed and production of cards was the first topic considered. W. E. Hammond, superintendent, Balfour (N. C.) Mills, Inc., recommended fast carding, about 10 r.p.m. on strict low middling, producing approximately 9 lb. per hour. Gaston Gage, instructor, Clemson College, said that 1 in. of lap is spread over approximately 2,500 in. of cylinder surface, and that he does not understand how "one, two, three, or four revolutions of the doffer could move it up enough to affect it one way or the other." Mr. Cottingham said that he cards low-grade cotton fast and light, and staple cotton slow and heavy.

Robert C. Ligon, overseer of spinning, Gluck Mills, Anderson, reported that for a year he has operated long-draft, one-process roving. For 60s warp, breaking strength is 12 lb., ends down 25, quality of yarn about the same, loom stoppage unchanged.

With reference to the least number of processes practicable for card room and spinning room, N. G. Hardie, assistant general superintendent, Gossett Mills, Anderson, recommended two processes in the card room and one in the spinning room, dependent on the type goods being run.

*JOSEPH C. COBB, who presided at Greenville meeting*

Speeds and specifications for drawing frames were given as follows: D. S. Mattox, overseer carding, Victor-Monaghan Co., 190 r.p.m., 64-grain sliver, old-type 1¼-in. roller; W. W. Cobb, superintendent, Norris Cotton Mills, Cateechee, 260 r.p.m., 50-grain sliver, metallic rollers, 30 to 40s yarn.

Several members reported good results from the use of composition rolls on drawing frames. Mr. Stutts said that front-roll lap-ups on his frames were decreased 75% by the use of composition covering. There was some complaint of eyebrows, but no suggestions as to means of preventing their formation.

The rapidity with which air is exhausted from the picker room makes humidifying useless, according to several members. In contrast, Mr. Lockman reported 18 vortex humidifiers in an 18x90x125 ft. picker room containing 12 pickers. Each picker has three fans, and dust pipes have been eliminated. He asserted the room can be wet down at will.

*Weaving*

The weaving discussion was led by Smith Crow, general superintendent, Drayton Mills, Spartanburg, S. C. Conclusions were as follows:

Cloth with raised stripes can be

made to roll up tightly on cloth roll by employing a larger diameter roll.

Shorter check straps will sometimes reduce kinky filling.

Tin covering for take-up rolls was agreed to be generally better than other coverings for use with cotton. A few preferred cork for light goods.

"Beads" which form on individual ends between reed and harness in broadcloth warps are often due to improper sizing. Too much tallow or acid may cause the trouble, but more than likely the squeeze rolls are not heavy enough.

Shellacked quills were thought to be generally better than enameled quills because the latter occasionally chip.

Consensus was that it is cheaper to buy fur for quills in strips, although some preferred hides.

Harness skips in broadcloth may be prevented to some extent by drawing drop wires so as to get a bigger opening between the yarn coming into the drop wires. Top shed must be kept slack.

Pairing of picks in light construction goods is usually due to improper harness setting.

From 8 to 10% size put into the yarn during slashing is the maximum which can be retained in weaving without causing trouble.

*Spinning*

Chairman Cobb led the spinning discussion which was very brief due to pressure of time. Conclusions were as follows:

Two-process roving and long-draft spinning call for a draft of 12 on warp and 14 on filling when making 30s to 40s yarn from 1 1/16 in. cotton, according to W. W. Cobb. Others reported longer drafts on similar setups.

Use of lighter spinning tapes was reported to have resulted in power savings, as much as 18 to 20% in some cases.

Spinning rings require from 30 days to 6 months for breaking-in, depending on spindle speed and yarn size.

Spindles should be plumbed on starting up new spinning and checked a few months later.

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# *Half-Hose Fixing*

## Advice concerning sole-slackening cams, wick oilers, and yarn-changing springs

***By I. C. Moore***

SOME philosopher has said: "Perfection is made up of trifles." By the same token it may be stated that the best fixer is the one who does not overlook such little things as the wick oiler, the sole-slackening cam, the finger springs, etc. On the surface, these details appear to be of little importance; but if they are neglected, they will cause plenty of trouble.

*Wick Oiler*

Above the knitting cylinder and its complex mechanism, a small wick oiler cup, resembling a small vaseline jar, is suspended from the yarn stand. This attachment is familiar to all fixers, and its function is generally understood; but since it does its work well and without fuss, for weeks at a time, it is easy for the fixer to forget its very existence.

As most of us know, the function of the wick oiler is not to lubricate the needles, as the apprentice fixer is likely to suppose, but to condition the heel and toe yarn so it will be better able to stand the strain of knitting this portion of the sock. Since the heel and toe of a sock require comparatively little yarn, the cone remains on the stand much longer than other cones of yarn. Therefore, it has a tendency to dry out. Should the wick become dry through failure to keep oil in the cup, the yarn may run badly causing seconds or waste.

Just for the sake of emphasis, I will relate an incident that happened in a southern mill not long ago. A fixer was having trouble with holes and cut-outs in the heel and toe on some of his machines. This trouble was spasmodic —it looked as though the machine were temperamental. He adjusted his take-up lever; examined both the widening and narrowing pickers; and, after finding nothing wrong with them, lost considerable time tampering with the bumper screws. When he was about to give up in disgust, he happened by some quirk of fate, to look up at the wick oil cups and notice they were dry. They probably had been dry for days. He lost no time refilling them, and soon this trouble disappeared.

*Sole-Slackening Cam*

Kniting machines have long been equipped with sole-slackening cams for loosening the stitch when an extra yarn is introduced to make a double sole in the foot; (even the old Geo. D. Mayo machine was so equipped) but, judging from the number of socks with tight double soles that get to the finishing, some fixers have forgotten about these cams. One fixer thought he could make an imitation double sole by manipulating this cam to knit the stitch tighter at this portion of the foot. Imagine his surprise and disappointment when he tried it on the board and saw how it fit!

Everyone who is familiar with knitting machines knows that, when a double sole is made, the extra thread is knit in along with the regular yarn for half a revolution of the cylinder and is then thrown out of knitting action and allowed to float the other half of the revolution. The knitting of these two yarns together as one thread is equivalent to the knitting of a coarser yarn. The coarser the yarn—the length of stitch and gage of needle remaining the same—the tighter the fabric will knit. That is the reason the machine is provided with a sole-slackening cam.

When the stitch of the double sole is not sufficiently slackened, it will be stiff and unyielding. This will cause poor boarding in the finishing department. The sole will not follow the contour of the form and the heel cannot be pulled down to its proper place. In other words, it will assume the position shown at *A* in Fig. 1, instead of position *B*. If the hosiery is being dried on internally-heated forms, the sole will not dry since there is a portion of the sole which does not touch the form—the arch of the foot.

Adjusting the sole-slackening cam

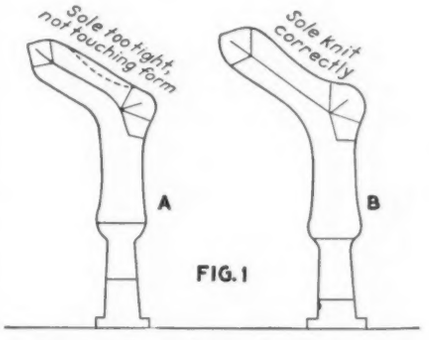


*Fig. 1. Effect when sole is insufficiently slackened.*

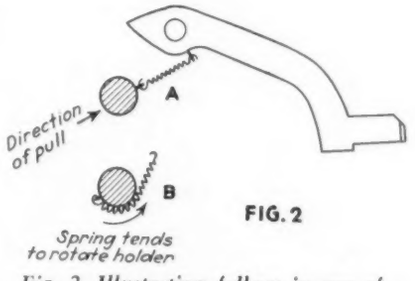


*Fig. 2. Illustrating fallacy in use of long spring.*

correctly is not difficult. Yet, as in the case of many other simple adjustments, some fixers do not give it the attention it deserves. The slackening is accomplished by adjusting the cam so it will move the high-butt sinkers in before the others—not by moving them in deeper, as some fixers seem to think. The amount of slackening depends, of course, on the size of reinforcing yarn used and can best be determined by experiment. Too much is just as bad as too little, as it will cause the heel of the sock to come down too far when the sock is boarded.

*Finger Springs*

The little coil spring which pulls the yarn-changing finger down to make a change is a harmless-looking thing, but all fixers know what a "smash" it often makes if it breaks and catches on the latch ring. These springs, being constantly under tension, naturally will become weak in time. When a spring begins to lose its potency, it will not be long before it snaps.

True, these springs will break sometimes without warning and for no apparent reason. Usually, though, there are two ways the fixer can tell when they are nearing the end of their usefulness. First, he can listen to the "click" when the finger goes down. If it is a sharp click, the spring is all right. If the sound is less pronounced, put in a new one. Second, by touching these springs with a small screwdriver, the fixer can judge whether they are getting old and feeble by the amount of "give." Regular inspection of the fingers for weak springs will save the fixer trouble.

Some fixers have attempted to prolong the life of the springs by using a longer spring than the standard. This is accomplished by turning the spring holder around on the shaft about 160°, as illustrated at *B* in Fig. 2. While this arrangement has merit—theoretically at least—it introduces another evil. As will be noted by referring to this same figure, the end of the spring passes around the holder like a belt around a pulley. The constant pull of the spring, indicated by the curved arrow, tends to cause the holder to slip on the shaft. When this happens, the spring loses its effectiveness. When attached the regular way (*A*), the pull of the spring is through the center of the shaft and there is no possibility of rotating the holder on the shaft.

*With Extra Finger*

While on the subject of yarn-changing fingers, it might be well to add that, if there is a finger on the machine not in use, and the toe of the sock is knit with a mercerized yarn, money can be saved in looper clipper waste, and the necessity of making a looper course in the toe can be avoided, by changing to a cheaper carded yarn to make the looper clipping.

By changing from mercerized to ordinary cotton yarn at the completion of the toe, a distinct line is formed—due to the difference between the two yarns. The looper can easily follow this line, and a looper course is not necessary. The looper trouble that the course often causes is therefore eliminated.

*Previous articles by Mr. Moore on the fixing of half-hose machines appeared in the July and August issues.*

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# Personal News

**L. W. Green,** superintendent of carding and spinning at No. 2 of the Gayle unit of the Springs Cotton Mills, Chester, S. C., has resigned to become superintendent of the spinning division of the Highland Park Mfg. Co., Unit No. 3 at Charlotte, N. C.

**J. Henry Jones,** who has held a position with the Bibb Mfg. Co., Macon, Ga., has been transferred to the unit of the company at Columbus, Ga., as paymaster. While in Macon he was connected with the dyeing department and the general offices.

**A. R. Haller** and **George Bouldry,** formerly of Dover, N. H. have been appointed superintendent and assistant superintendent, respectively, at Cowan Mills, Lewiston, Me.

**Otto Ruhlin,** formerly with Sawyer Mills, Dover, N. H., and a past-president of the National Association of Woolen and Worsted Overseers, is now associated with the Guilford, Me., plant of Oldtown Woolen Co.

**R. B. Riddle** has been appointed superintendent of carding at the No. 3 mill of the J. W. Sanders Cotton Mill, Meridian, Miss.

**Murray Greenwald** has been appointed general manager, screen printing division, Davis Mills Corp., Fall River, Mass.

**K. M. Lowry,** Lancaster (S.C.) has been named to succeed **H. C. Skelton,** recently promoted to carding and spinning superintendency, as cost accountant at the Chester (S.C.) units of Springs Cotton Mills.

**H. H. Bradford,** for nine years with Matthews Mill, Greenwood, S. C., is now general overseer of weaving at Anderson (S. C.) Cotton Mills.

**P. E. Strickland,** overseer of spinning at Anderson (S. C.) Cotton Mills, has been named night superintendent.

**Howard Wade,** formerly spinning superintendent at West Boylston, Mass., has been named to a similar position with Farr Alpaca Co., Holyoke, Mass.

**James Darby** has resigned as a member of the office personnel of the Ware Shoals (S. C.) Mfg. Co., to become instructor in the schools of Kingstree, S. C.

**Paul Cox,** formerly associated with the A. M. Smyre Mfg. Co., Ranlo, N. C., in the mechanical department, has taken a similar position with the textile department of the North Carolina State College at Raleigh, N. C.

**Lewis L. Bowen** has been promoted to assistant superintendent of the Roanoke (Va.) Weaving Mill.

**Clyde Jackson** is now overseer of carding at the No. 1 mill of the Gayle plant of the Springs Cotton Mills, Chester, S. C.

**J. A. Scroggins** of Dadeville, Ala., has become overseer of weaving at the Alabama Mills, Wetumpka, Ala.

**Charlie Settlemyre** has become overseer of No. 3 spinning at the Cannon Mills Co., Plant No. 4, Kannapolis, N. C.

**W. B. Shannon,** formerly overseer of weaving at the Carolina Cotton & Woolen Mill, Leaksville, N. C., has become overseer of spinning at Mill No. 3 of the Highland Park Mfg. Co., Charlotte, N. C.

**E. M. Ritche** has resigned as overseer of No. 3 spinning at the Cannon Mills Co., Plant No. 4, Kannapolis, N. C., and now holds a similar position with the Sanford (N. C.) Cotton Mills.

**H. M. Bashinski** has been appointed foreman of the dyeing department of the Bibb Mfg. Co., Macon, Ga.

**Henry Harrison** has become shift foreman in winding and finishing at the Porterdale, Ga., plant of Bibb Mfg. Co.

**R. C. Terrell** has been appointed overseer of weaving at the Georgia-Kincaid Mills, No. 5 mill, Griffin, Ga.

**J. E. Carter** has resigned as overseer of spinning at the Alabama Cotton Mills, Speigner, Ala., to accept the position of overseer of carding, spinning, twisting and weaving at the Selma Mfg. Co., Montgomery, Ala.

**Everett Wood** has accepted a position in the dyeing department at Arlington Mills, Lawrence, Mass.

**H. H. Field,** formerly with Eagle & Phenix Mills, Columbus, Ga., is now superintending the dyeing and finishing at Stonecutter Mills Co., Spindale, N. C.

**E. T. Lollis** has resigned as overseer of weaving at the Ware Shoals (S. C.) Mfg., Co.

**Ed Seigle** has become overseer of weaving at the Lancaster (S. C.) plant of the Springs Cotton Mills.

**W. D. King** has been named overseer of weaving at the Ninety-Six (S. C.) Cotton Mills.

**W. T. Jeffries,** formerly of West Point, Miss., has become superintendent of the Winona (Miss.) Cotton Mill.

**R. T. Staples,** formerly assistant superintendent of New Braunfels (Tex.) Textile Mills, Inc., is now superintendent of J. W. Sanders Cotton Mill, No. 3, Meridian, Miss.

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# The Overseer's Corner

# Questions & Answers

## Shuttle-Box Adjustment

Technical Editor:

What is the remedy for the following trouble? I am not able to keep the boxes level on some 4x1 C&K looms. Working with two shuttles alternately, the boxes are all right for 5 to 60 min. or a day, and then they are off, a little higher or lower by 1/16 to ¼ in.—or even more. What is the remedy? (8457)

The boxes will assume a lower position when the box-lifting chain is worn. A little oil applied occasionally to this chain will prevent the wear. The boxes can be made to assume a higher position only by the lay end coming up, or by the moving of the carrier pulleys. These pulleys, over which the box chain passes, become stuck sometimes, remaining in one position too long and permitting the chains to wear flat spots in them. The resulting high and low spots on these pulleys will make the action of the boxes irregular. The remedy is either to procure new pulleys or to prevent their revolving. If the latter remedy is applied, the chains will wear down more quickly, but they will still last for many years.

Of course there are likely to be some weavers who will change the position of the boxes themselves. This practice must be detected and stopped.

## Cotton-Back Rayon Satin Chafed

Technical Editor:

I am sending you under separate cover a sample of cotton-back satin—eight-harness, 200x72, 150-denier rayon bright 40-filament, 20s single combed-cotton filling. You will note that the rayon on the face of this sample is broken in a great many places. I wish you would let me know what you think has caused this trouble. (8481)

We are of the opinion that this defect has been caused in the weave room. Examination under a powerful glass shows that these breaks have been caused by chafing, which has so weakened the yarn that it will not stand up under the finishing. Examination of the yarn in various parts of the fabric indicates that there may be a number of causes for the chafing, such as defective reeds or harnesses, crooked shuttles, improper timing of the shed, unsuitable tension on the warp, etc. We suggest that you examine the goods while they are being woven. Looking at the cloth from a distance will often disclose the trouble.

We also find that some of the yarn has a very hard feel, as if the size had not been properly applied. Sometimes this condition results from the mill spraying a warp when experiencing trouble at the loom. We note that some of these warp ends have floated in places as far as three repeats. This indicates that a harness has been lying a little low and may be considered further evidence to support our belief that the trouble originates in the weave room.

## Half Hose with Elastic Top

Technical Editor:

We are inclosing herewith a stocking apparently made on a footer with an elastic insert. Please advise if this could be made on Banner machines, 160-needle, 3¾ in. low cylinder, equipped with four-color striping attachment, reverse-plate five-step. Please return the sample. (8480)

It is possible to make hose similar to the inclosed sample on a low-cylinder Banner hosiery machine. The standard attachment inserts one course of rubber every fourth course, being controlled from the 104 eccentric gear. As the sample seems to have 2 courses of rubber every six courses, it would be necessary to control the rubber from the striper rather than from the 104 gear. This would reduce the number of colors which could be operated but would be satisfactory for this pattern. The machine can be arranged to start the rubber on every second needle, which will give a finished edge at the top of the sock.

## Silk Soaking

Technical Editor:

It has come to our attention that a certain solvent is used in the soaking bath of raw silk prior to the throwing operations, which tends to throw off any accumulation of dirt and grease which may be acquired by the thread in passing through the operations. If there is any information which you can give us with regard to this solvent and its method of use in the soaking bath, we shall be greatly appreciative. (8430)

We are not familiar with any solvent used in the silk soaking bath that actually throws off any accumulation of dirt and grease which the silk picks up during processing. However, various solvents and emulsifying agents are used which loosen the grease and dirt and hold it in solution or suspension so that it comes out readily in the boil-off.

Sulphonated oils are frequently employed. Cresylic acid products, which are used chiefly because of their anti-mildewing properties, have a solvent action. Sulphated fatty alcohols and similar materials are used under some circumstances. Various amino compounds are sometimes used to cut down the fatty acid of the soaking oils, and many of these amino materials have solvent or emulsifying and wetting-out properties.

However, it has been our experience that if the grease or dirt has been acquired by the single ends before twisting, and is then twisted into a thread with more than ten turns, it is difficult to remove the grease stain in the boil-off, no matter what kind of solvent is used in the soaking bath.

If the grease or dirt is acquired after twisting, it does not penetrate deeply and, therefore, is easy to remove in the boil-off.

We are afraid that you will find it impossible to remove twisted-in grease or dirt prior to boiling-off, without a lot of hand spotting and rubbing. Therefore, care should be taken to keep the silk clean by keeping the mill and machinery clean and free from oils that drip and greases that spatter.

## Carpet-Yarn Calculations

Technical Editor:

Will you kindly tell me how to figure the amount of yarn necessary to weave a yard of carpet when the height of the wire, wires per inch, count of yarn, and number of frames are taken into consideration. The following is an example of what I mean: yarn, 32 3-ply wool; wires per inch, 8; pitch, 176 ends to a ¾ width; wire, .368 x .045; frames of yarn, 5; frames of yarn, 2 live; frames of yarn, 3 dead. The amount of dead used is to be figured separately. (8440)

To compute the amount of yarn necessary to weave a given yardage of brussels or wilton carpet, a small piece of the given quality—say, 6 in.—should be woven plain and dissected. In weaving, blades should be used which will enable the face yarn, woven over the wires, to be pulled apart whole. Then the "take-up" can be measured, and the amount of face yarn necessary to weave the sample piece determined. Of course, the yarn from a sample piece can be weighed to give the same result.

Although it is theoretically possible to calculate the length and thus the weight of the face yarn if we are given the wire height, number of picks, etc., such a calculation is rendered impractical by the varying tensions in weaving and the variation of the take-up as a heavier or lighter yarn is used.

The solution is only a simple problem in proportion, thus:

ends in 27 in. (176) x length of yarn in inches (say 18) ÷ length woven (6 in.) x yards per ounce (32) = ounces per 27-in. yard for face yarn (with addition of a waste factor, such as 2½%, if the calculation is for costing purposes).

The calculation for the other four frames (i.e., three dead frames and one live frame down on each lash) is the same as above without the take-up factor:

ends in 27 in. (176) ÷ yards per ounce = ounces of yarn per 27 in. — as each end is 1 yd. in length—plus waste factor.

To calculate accurately the amount of each of the two live frames to be dyed, one repeat of the particular pattern would have to be counted and the percentage of squares "up" of each color noted. That percentage of the difference between the weights of the above two calculations added to the second (or dead frame) weight would then give the quantity of each face yarn, the sum of which added to the total of the three dead frames would give the total wool yarn necessary.

If the yarn in the small sample is weighed rather than measured, care must be taken to make proper allowance for the shrinkage from greasy to dyed weight—usually around 10%—by adding one-ninth to the clean weight to re-obtain the greasy weight. In practice, when calculating yarn necessary to weave a given yardage, an overage would have to be allowed for so that the spools in the creel would still contain a weavable quantity as the end of the given order was reached.

# Loomfixers' Manual

## COTTON SECTION — CHAPTER II (CONTINUED)

***Chapter I of the Cotton Section appeared in the August issue; and the first part of Chapter II, in the October issue. Chapter I of the Wool Section was published in September. Any reader who missed these previous instalments may procure copies gratis, as long as the supply lasts, by writing* TEXTILE WORLD. *The Rayon-Silk Section will begin in an early issue.***

By Ivar Moberg

### Take-Up Motion

IN THE weaving of certain types of fabrics it is necessary to stop the take-up at intervals. This may be termed "take-up at will." For example, Fig. C10 shows a Crompton & Knowles arrangement for stopping the take-up in this manner on a C3 terry-towel loom. The builder's instructions for timing the box-motion indicator to lift the hold pawl are as follows:

"In terry-towel weaving, to obtain a perfect joint between the plain and the terry weave, it is essential that the take-up does not function during the transition. The take-up will not function if the hold pawl is lifted out of contact with the take-up ratchet. The means for lifting the hold-back pawl have been provided by lever *A* in the box-motion indicator.

"The hold-back pawl *B* should be lifted when the take-up pawl *C* is exerting pressure on the take-up ratchet *D* and the pressure is relieved from *B*. The pressure on *B* is minimum when the lay is at front center.

"The indicator should be timed thus:

*"Step No. 1.* Turn the loom until it has picked from the drop-box end and the lay is 6½ in. before front center as measured from the reed line to the inside corner of the breast beam.

*"Step No. 2.* Loosen setscrews in the hub of the box-motion indicator gear *E* on the crankshaft.

*"Step No. 3.* Turn the handwheel on the vertical shaft clockwise to the point where the worm gear *F* on the box-chain cylinder shaft starts to move.

*"Step No. 4.* Tighten the setscrews in the hub of gear *F* on the crankshaft."

This arrangement might well be used for other kinds of weaves requiring a take-up-at-will feature. It may be connected to the harness motion also.

The writer's experience has been that it is better to lift the take-up pawl from contact with the ratchet, rather than the hold pawl. If the take-up motion for some reason should turn resistingly and the hold pawl is lifted, the take-up pawl will continue to take up the cloth, even though the hold pawl is lifted out of engagement with the ratchet. Furthermore, if it should work all right, the take-up motion will have a back-and-forth movement while the take-up is stopped. If the take-up pawl is lifted instead of the hold pawl, there is no danger that the cloth will be taken up while the pawl is lifted, and there will be no back-and-forth movement of the take-up motion.

Fig. C11 shows a positive take-up-at-will arrangement that the writer devised for worm take-up on Draper looms running on fancy curtain materials. This arrangement is very positive in its action. To apply, the worm shaft is sawed off and a closed keyway is cut in the end which will take the sliding half of a coupling having two lugs diametrically opposite, either of which may become engaged. The other half of the coupling, which is stationary, can be setscrewed to the shaft after being placed in such a position that the ends of the worm shaft meet approximately in the center. It will act like a bearing, supporting the ends of the shaft. The sliding part of the coupling should slip freely over the key and be held in contact with the other half of the coupling through a compression spring between the sliding half of the coupling and a collar on the shaft. A forked arm on a shaft below engages a groove in the sliding half and disengages the coupling when the horizontal arm is raised by the harness motion. Since the worm shaft revolves once for every two picks, the coupling must have two lugs, or engagement points, if the take-up is to be stopped for any odd number of picks.

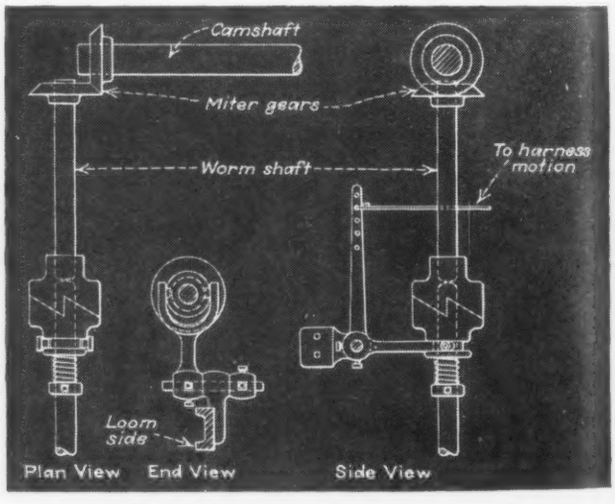
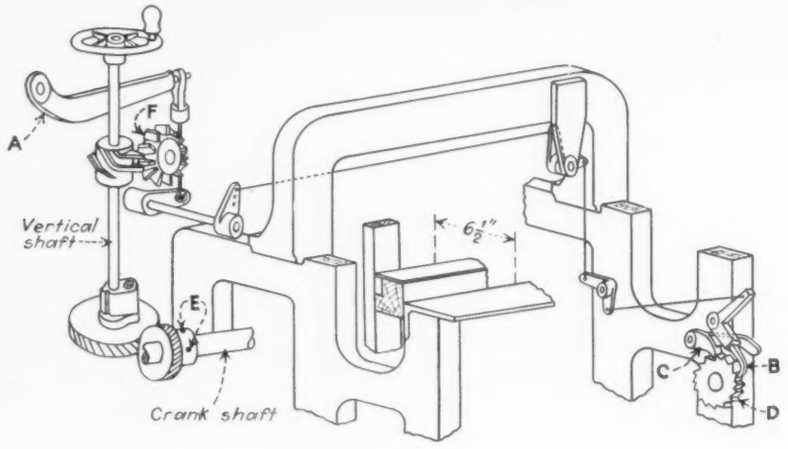



*Fig. C11. Take-up-at-will arrangement for worm take-up on Draper looms on fancy curtaining.*

*Fig. C10. A take-up-at-will arrangement as applied to the Crompton & Knowles C3-model terry-towel loom.*



# WOOL SECTION CHAPTER II

By Benjamin F. Hayes

## Lining and Leveling

***Loomfixers in any one branch of the industry—whether in the wool, cotton, or rayon-silk branch—will find much that is useful to them in those sections of this Manual which are directed primarily to other branches than their own. See editorial note on opposite page.***

MR. MOBERG has covered the subject of loom erecting, aligning, and leveling so thoroughly in his first chapter of the Cotton Section that I need add only the following points:

Where lineshafting is to be used and is already in place, a straight line on the floor is secured by plumbing down from the shafting, care being taken of course to see that the plumbing is always from the same side of the shaft.

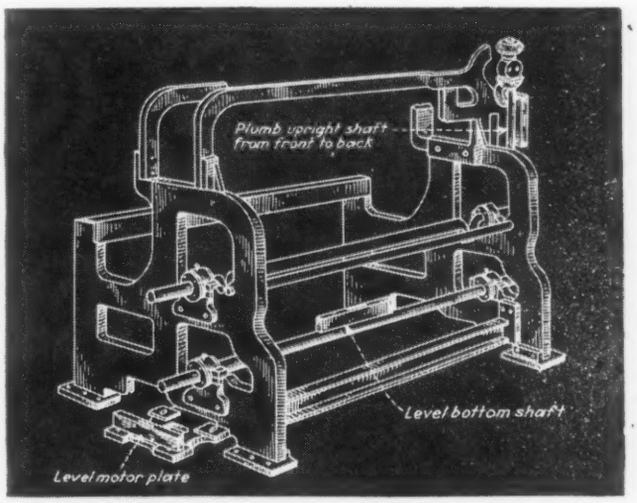



***Fig. W2. Crompton & Knowles diagram illustrating leveling of wool-loom frame***

Mainly to avoid criticism, whether deserved or not, from those who will later observe the weave room with a fault-finding eye, it is well not to fasten any looms down until a number have been leveled, in order that a uniform height throughout the room can be assured. Then, with the looms level and in perfect line, they should be lagged down with a suitable lag screw in every hole (including those in the countershaft casting, where such a shaft is used). Fixers who skimp by using only, say, half the lag screws required will eventually find their looms shaking loose.

The distances which should be allowed between rows of looms vary with the extent to which the warp beams and cloth rolls protrude, the mill posts which must be allowed for, and other local conditions; but it may be said that a width of 25 in. in the front alley and a width of 48 in. in the back alley (where warps have to be wheeled into direct position and provision must often be made for the use of two beams) are frequently sufficient and not wasteful of space. The use of an overhead trolley will reduce the amount of space needed in the beam alley.

Another factor which must be given consideration in the placing of looms is the construction of the weave-room floor. Looms located with their back feet, which support the loom-beam stands, in spaces between floor beams are subject to excess vibration. This is likely to cause uneven weaving, particularly in the case of light weaves which do not permit much weight on the beam levers, more especially when the warps are nearly run out. The chances are that the weave-room floor has been or can be equipped with sufficient cross beams so that, if the looms are properly placed, their back feet will in all cases be on or close to the cross beams.

Albert Palmer of Crompton & Knowles Loom Works, offers the following useful suggestions of interest to wool, cotton, and other mills:

"One point that might be mentioned is in the matter of fastening the looms to the floor. Modern looms have a tendency to vibrate because of the high speed and, in some cases, particularly cotton looms, because of the weight of the lay and the increased crank throw that is required for large packages of filling. The back feet of looms have a tendency to pull up on the floor. In fact, both back and front feet do, but the upward forces are greater on the back feet. Accordingly, even though the floors are sufficiently strong to support a downward load, they may not be capable of taking an upward load.

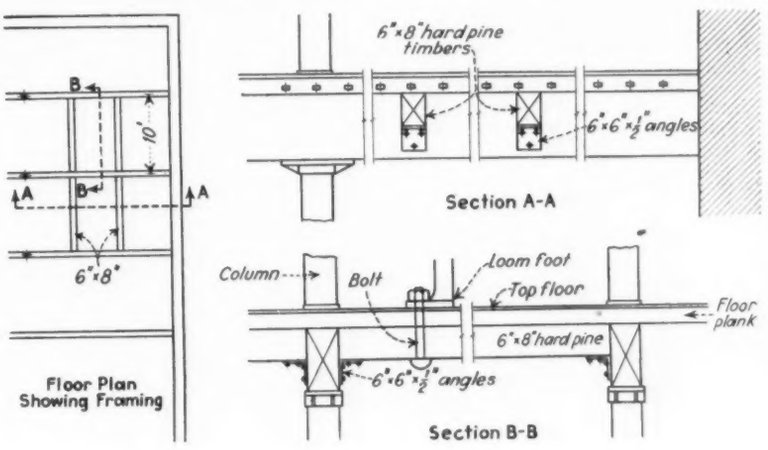
"In many instances the maple top floor is not fastened securely to the planking of the sub-floor. Again, if the sub-floor is not fastened adequately to the frame of the building, the result is that the looms lift the top floor and sometimes the sub-floor. The only thing to do in such cases is to stiffen the floors as in the diagram [Fig. W1]. With the 6x8 timbers in place under the loom feet, the lag screws can be put down through the floors into the timbers. Better still, bolts can be run down through the feet, the floors, and the timbers. Such an arrangement gives the maximum of stiffness.

"The use of felt pads and a cementing compound permits machinery to be fastened to concrete floors without any drilling of holes in the concrete. The idea is all right on wooden floors, except that it does not permit a secure connection to the sub-floor and timbers."

Fig. W2 shows a diagram which is shipped with all new Crompton & Knowles wool looms to show how they should be leveled. The old countershaft, which used to be employed as a basis for leveling the loom in the front-back direction, is not a part of modern looms.

Remember, we may be doing a job which will remain unchanged for 30 years. Therefore all care and effort expended on it are worth while.

***Fig. W1. Crompton & Knowles diagram showing method of stiffening timbers for present wood floor***



# New Machinery and Processes

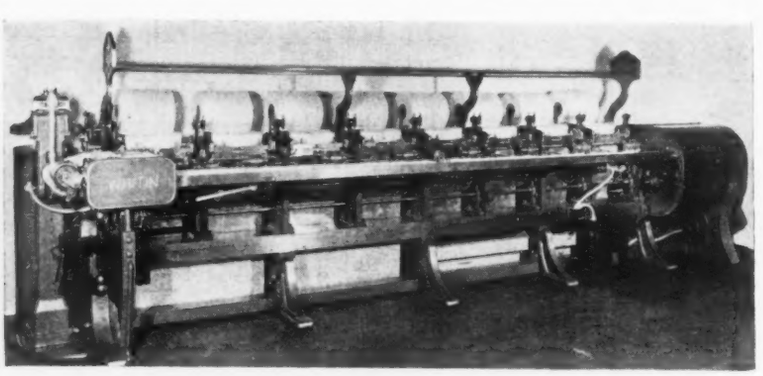
## *Improved Cotton Comber*

• The Model D4 comber, now offered by the Whitin Machine Works, Whitinsville, Mass., is the culmination of two years, work in their experimental department aimed at improving the company's D3 comber. The resulting machine produces better combed sliver at higher rate, according to the makers, and combines simplified construction with ease of adjustment and reliability of service.

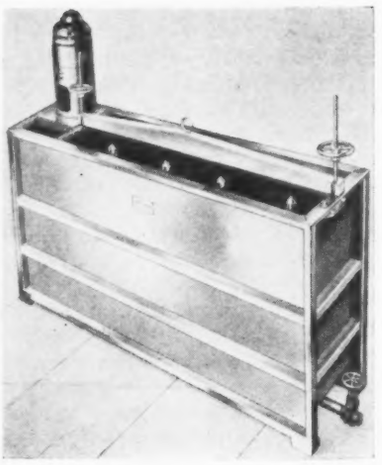
The new comber is 3 in. lower than the earlier models, a convenience to comber-tenders and an aid in reducing vibration. There are fewer parts; the machine is lighter, cleaning is easier. Dead weighting and weight releasing mechanisms below the beam have been supplanted, and above-the-table parts have been made less complicated or omitted. After once being set, top combs do not require adjustment for length of staple or waste percentage. A cam lever controls the latter to as low as 5%. About 1,000 needles have been added to the half lap. Many long fibers are retained which were formerly combed out by the half lap. A larger tuft is presented by combing with a gain of 3/16 in. in the bite of the nippers with the cotton closer to the edge of the cushion plate. Top combs may be lifted out without tools for cleaning. Top detaching rolls are easily removed, and, in place of former dead weighting, spring weighting is used. Oilless bearings are used on these rolls. The aspirator has been improved and the pressure is identical across the full width of the web, it is said. Waste chute windows permit examination of the web as it is formed. Facilities are provided for rapid and convenient changes in weight of the coiler sliver.

Mill tests show that sliver from the D4 comber contains a larger percentage of long-staple cotton fiber and that more of the short fibers are taken out. There is minimum breakage of the web and a strong piecing mechanism.

A point of interest to operators of Model D3 combers is the fact that all of the new D4 features except the lowering of the frame may be applied to the Model D3 combers without removal from the mill floor.



**COMBER**



**TOP DYEING**

## Improved Top Dyeing Machine

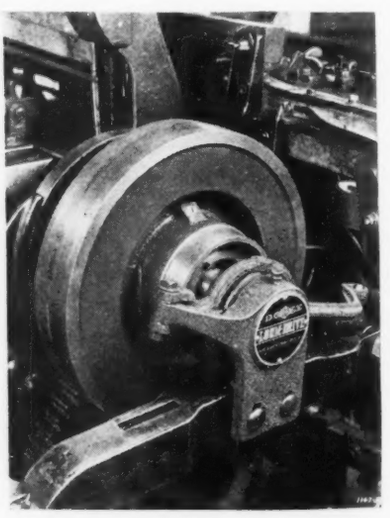
• A stainless-steel top-dyeing machine has been added to "The Fleet Line" of Riggs & Lombard, Lowell, Mass. Its construction avoids exterior piping and the motor is on the top of the machine avoiding contact with water and dirt. The use of stainless steel facilitates brighter and more uniform colors and prevents pipe scale in the dye bath.

The makers stress the following advantages: uniform pressure on all spindles, saving in floor space, ease in installation, wide adaptability to styles of top windings and to fibers (rayon and mohair as well as worsted). The machine can be furnished with any length of spindle, and the spindles in any reasonable number and arrangement. The pump draws the dye liquor through a screen and delivers it to a pressure chamber immediately below, and thence through distributing canals, welded under the bottom, to the perforated spindles. The tops are compressed by the usual cap and bar, and unloading may be accomplished by a chain hoist. The machine requires no special foundation and is ready to operate when electric, steam and water connections are made.

## Flywheel-and-Clutch Loom Drive

A simple and compact friction clutch in conjunction with a flywheel compose the Dodge Loom Drive, developed by the Dodge Mfg. Co., Mischawaka, Ind. The clutch which transmits the power from flywheel to loom is of hardened steel except for the friction surface which is molded asbestos. Once engaged, this clutch stays in that position without added pressure.

The device is easy of installation since the entire loom drive including flywheel, clutch and outboard bearing, is assembled on a full-length sleeve which fits over the regular loom crankshaft. It is not necessary to cut new keyways or to alter the loom parts in any way. All bearing surfaces, including the outboard bearing, are fitted with a Bronzoil bushing which will operate successfully from three to four months on one supply of oil.



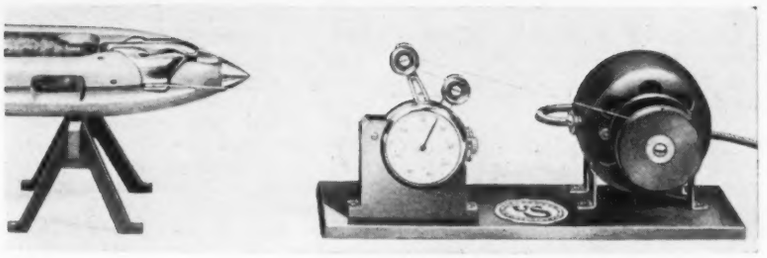
**DRIVE**

Principal advantage cited is that the Dodge loom drive supplies additional power to the loom at the instant the pick is made, thereby smoothing out the loom operation and permitting faster operation.

## *Checking Yarn Tensions In Shuttles*

• An improved tensiometer has been developed by the U S Bobbin & Shuttle Co.,

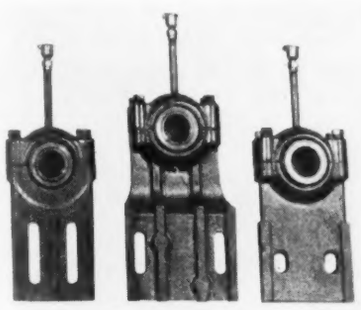
Lawrence, Mass., which accurately measures the tension of rayon and silk yarn in tension shuttles. Developed for use with U S Jackson and Unit positive tension eyes, the U S Tensiometer allows adjustment of these mechanical tension shuttles to a given pull at which the mill finds the best work is done. When a mill changes from one denier to another, the tensiometer is useful in readjusting the tension eyes.



**TENSION**

### *Textile Pillow Blocks*

• Economical pillow blocks designed especially for textile machinery have been developed by Randall Graphite Products Corp., 609 West Lake St., Chicago. These pillow blocks replace outboard, foot, center,

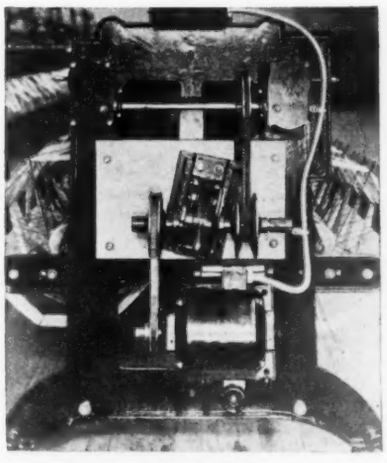


**BLOCKS**

and head bearings on Saco-Lowell, Saco-Pettee, Fales & Jenks, and Whitin spinners and twisters. They can be installed in any position without alteration to the frame, and are equipped with the patented Randall double-reservoir oil-return ball. Oil reaches the upper reservoir through a standard oiler, and feeds to the shaft through graphite feed plugs and graphite-filled channels. Oil-recovery grooves divert unconsumed oil into a lower wool-packed reservoir from where oil is again fed, as needed, to the shaft and bearing through lower graphite feed plugs.

### Variable Speed Pulley Drive

The variable pulley principle is utilized by the Columbia Vari-Speed Co., Wheaton, Ill., in its JFS-Jr. vari-speed control. This is adaptable to textile uses and may be controlled by hand, cam, foot pedal or through various remote controls. The illustration shows it on an Acme skein winder of the U. S. Textile Machine Co., Scranton, Pa.



**VARIABLE SPEED**

The unit consists of two interlocking, variable pulleys mounted on a single shaft and using standard V belts. To change the speed, the pulleys and shaft are pivoted laterally through a determined arc toward or away from the drive or driven pulleys by means of the control handle. As this change is made, the resulting belt tension in the one belt and the slack in the second, automatically adjusts the pulley diameters to give a new ratio between the pulleys' running diameters. Each pulley is dependent upon the other so that they are perfectly adjusted in all positions. This mutual compensation relieves all belt tension. Speed ratios of 5 to 1 are standard; up to 10 to 1 are available.

## *NEW DYES & CHEMICALS*

### General Dyes

General Dyestuff Corp. announces the following new products:

Direct Fast Orange MR Conc, a direct dye which produces on cotton shades of a bright reddish orange possessing good fastness to light and washing; it leaves wool practically clear and is for this reason particularly well suited for speck dyeing. Fastusol Green LGT, a new direct dye which yields popular, covered, green shades of good fastness to light; after-treatment with Solidogen B increases fastness to water from fairly good to very good. Diazo Fast Bordeaux BBLA, a developed color which when diazotized and developed with Developer A, produces on cotton or rayon full shades of a bright bluish red; dyeings can be readily discharged to a pure white with Rongalite C. Mordant Yellow OD, a chrome color which, when dyed according to the usual afterchrome method, produces bright reddish yellows of good fastness to light and fulling; it can also be applied on a chrome mordant or according to the chromate method. Celliton Discharge Blue 5G, an acetate dye yielding particularly bright blue shades dischargeable to a pure white.

### Printing Lacquer

A new printing lacquer which is said to have unusual flexibility and adhesive power has been placed on the market recently by H. V. Walker Co., Elizabeth, N. J. The new lacquer is recommended for printing on rayon, acetate, oiled silk, and Pliofilm. Among the features of the lacquer cited by the manufacturers are its ease of application and the fact that it is washable. The lacquer is available in black, white, aluminum, and in colors.

## *NEW PUBLICATIONS*

**A Deeper Root;** by William Chase Greene; Little, Brown & Co., Boston. Price, $2.50.

It is refreshing to read a novel of textile mill life written from a new viewpoint: that of the management. It is doubly refreshing to find in John Stedman, resident agent of a woolen mill of New England's middle '80s, one of the most forceful characters we have met in fiction in quite sometime.

Stedman moved his Quaker family to a poorly governed New England mill village, and his efforts to solve the problems of both mill and village, each of which he finds contingent upon the other, give us a gripping story. His struggles as he tries to enlarge the mill and furnish decent living for the employees; as he faces the bitter results of politics and tariff as relating to the textile industry; as he knows defeat in his objectives by enforced curtailment due to national economic causes and then turns this defeat into victory, is a story of mill life which although familiar to all mill executives is a brand new tale for the lay reader.

Through the whole shines John Stedman's forthright honesty, high principles and unselfish ideals for the betterment of his employees and the town in which they live. The entire Quaker family, including the placid and sympathetic daughter Abbie, and the gracious living in the Stedman home seem merely backdrops to accentuate Stedman's forcefulness.

This is a thrilling story of a textile pioneer's life and attainments: technical enough to be bona fide but not carrying its technicality to the point of dullness. Written of a past generation it still presents textile management problems of today.

A Deeper Root will furnish interesting reading for all but should be on the must-list of ambitious folk who plan to propose textile legislation during the next Congressional session.

**Roving Frames;** by H. H. Willis, Robert K. Eaton, and Vernette B. Moore; Textile Foundation, Washington, D. C.; multilithed copies obtainable from H. H. Willis, Clemson, S. C., at $1.25.

They are coming fast, these six books on cotton-yarn manufacture sponsored by the Textile Foundation. Scarcely had

we written the review of "Cotton Opening, Cleaning, and Picking" printed last month, when the third volume of the sextuplet, "Roving Frames," was in our hands. In this case Dean Willis has as his collaborators Robert K. Eaton, head of carding and spinning at Clemson, and again Miss Verenette B. Moore, who, incidentally, is a specialist in educational methods. They must all be determined and efficient workers.

This book, like its predecessors, is thoroughly up to date. A large section of it is devoted to latest developments in long-draft roving equipment. Even the Guillet overhauling system is illustrated, although not described in detail. Roving calculations are given particular emphasis.

We are glad to see in the book an attempt to clarify roving terminology, as follows: "The machines which use flyers to twist fibers together into a roving are called fly frames or roving frames. The terms are synonymous and are used interchangeably. The first machine of the fly-frame series is called a slubber. The other three are first and second intermediate and the jack frame. The second intermediate is sometimes referred to as the speeder or the fine frame." We, as editors, would like to have seen in the book an attempt to standardize one terminology, whether or not this happened to be TEXTILE WORLD'S, as follows: *Roving* frames consist of *slubber, intermediate, fine,* and *jack*. Also, somebody, somewhere, sometime has got to put the forgotten verb "rove," which means "to conduct the roving operation or operations," into general use. Then we can say "This mill opens, picks, cards, combs, draws, *roves,* and spins cotton," or "that man knows how to *rove*." And, while we are on it, "That man is a *rover*."

**Official American Textile Directory;** Textile World Publications, McGraw-Hill Publishing Co., New York; 612 pp.; $4.00.

The 1937 edition of the "Official American Textile Directory" is available. It has been thoroughly revised to give last-minute details on all its listings.

The Mill section lists geographically (by states and towns) the textile mills of the United States and Canada with such information for each as names of officers and operating officials, equipment, products and sales outlets. Classification of mills by branches of industry is clearly indicated by key letters in upper right hand corner of each entry. This material has been brought completely up-to-date, and the tabular arrangement makes possible rapid access to important mill data.

The Yarn Buyers Guide and Processing Sections include a listing of spinners, classified by types, sizes and put-ups; a geographical arrangement of yarn dealers, agents and direct mill sales offices; a list of dyers, bleachers, printers and finishers, classified by process; and a listing of commission spinners, winders, weavers, etc.

There is also the usual alphabetical list of mills by company or mill name.

The size and weight of this new edition adapts it equally well to easy use in the office or the field.

**Song on Your Bugles;** by Eric Knight; Harper & Brothers, New York. Price $2.50.

The fact that one emerges from this novel thoroughly acquainted with Yorkshire mill life shows that the author lived there long enough to know it and stayed away long enough to look at it. He dunks the little mill village in his own reactions to its life and its characters, and then holds it up for the reader to see all its highlights and shadows. These he conveys through the characterization of the young artist, Herrie Champion, whose driving ambition to paint crystallizes into eagerness to show on canvas to an uninterested world the cruel poverty of his Yorkshire people for he writhes at their stereotyped life —their no-goal, no-score, no-victory existence.

Herrie Champion struggles to leave behind the starvation of the mill worker, yet finds that after all he is tied immutably by an illegitimacy which links him to the village as well as to that other world of bearskin rugs, success and canvas to which he aspires.

The finale is the familiar story of another little world swept away by the depression but the author is smart enough to include background and main characters in one glorious swoop so that the book remains a well-rounded entity.

# *NEWS OF SUPPLIERS*

• **H. W. Butterworth & Sons Co.,** Philadelphia, announces appointment of Frederick N. Spoerl to the New England territory, taking the place of Thomas W. France who represented the company for 33 years and who died Sept. 26. Mr. Spoerl has been identified with the company for 25 years, most of this time in the engineering department.

• **Warwick Chemical Co.,** West Warwick, R. I., announces that Dr. Dale S. Chamberlin has been elected to the office of vice president. Donald S. Collard has been appointed chief chemist. Anthony F. Costello has joined their technical service staff at West Warwick, R. I., coming from a 10-year connection with Lumb Knitting Co., Pawtucket, R. I.

• **Hemphill Co.,** Pawtucket, R. I., announces that Alfred L. Hutton, Jr., vice-president and associated with the company for 20 years, has resumed personal direction of the engineering department following withdrawal of Robert H. Lawson who is now associated with his father in Lawson Products, Inc., Pawtucket.

• **Stein, Hall & Co., Inc.,** New York, has established a new laboratory at Providence, R. I., fitted out with complete and modern equipment for scientific solution of sizing, printing and finishing problems.

• **Truscon Laboratories,** Detroit, Mich., waterproofing and special paints and coatings, have placed a stock of materials in their Charlotte, N. C., warehouse to take care of increased demand. Truscon maintains an office and warehouse in Atlanta, under the supervision of R. G. Bullard, 128 Marietta Street, N. W. The Charlotte office and warehouse are under the supervision of Geo. H. Woolley, Jr., with offices in the Johnston Bldg.

• **Graton & Knight Co.,** belting manufacturers, Worcester, Mass., recently completed construction of a $50,000 trailer, containing six different factories, a laboratory and rolling electric light plant; this novel trailer now is on a tour of New England manufacturers. The same company announces that a trigger-action belt dressing applicator is being given away to belting users.

• **Babcock & Wilcox Tube Co.,** Beaver Falls, Pa., announces the transfer of Bruce M. Jones from Beaver Falls to its New York Office. Mr. Jones was formerly with the Symington Co., Gould Coupler Co., and Ross Meehan Foundries. The company also announces the appointment of Edward D. Emerson as New York manager of domestic and export sales. Mr. Emerson was formerly with Jones & Laughlin Steel Corp. and Air Reduction Sales Co.

• **New Departure, Division of General Motors Corp.,** Bristol, Conn., has appointed Frank J. Miller as manager of its Chicago sales and engineering office, succeeding G. W. Fowler, deceased. Mr. Miller has been associated with New Departure's sales activities in the Chicago territory for over 18 years.

• **Graham Transmissions, Inc.,** Milwaukee, have appointed Frank Campbell Co., sales engineers, 15th and Market St., Philadelphia, to handle the Graham variable-speed transmission in Eastern Pennsylvania, Southern New Jersey, Maryland, Delaware and the District of Columbia.

• **Carrier Corp.,** now of Syracuse, N. Y., announces that its Newark, N. J., advertising representatives, Chas. Dallas Reach Co., will continue as publications contact for the company.

• **Julien P. Friez & Sons, Inc.,** Baltimore, Md., announce the opening of

*Joseph H. Bennis, vice-president and sales manager of the N. Y. & N. J. Lubricant Co., at left, talking with J. K. McMyn, director of British agency for Non-Fluid Oil. Mr. McMyn is displaying a sheet of orders showing the increased sales of Non-Fluid Oil in England during the past year. Mr. Bennis also visited Holland, Switzerland, Belgium, France, Austria, Czechoslovakia, Hungary and Italy.*

### PACKAGING

*Some 75 of the foremost firms making packaging equipment will present their latest developments for the "glorification of the American package" at the Eighth Annual Packaging Exposition which will be held March 22 to 25, 1938, inclusive, at the Palmer House, Chicago. Plans for the event were announced by Alvin E. Dodd, president of the American Management Association, sponsoring organization. Exhibits will cover machinery, equipment, supplies and services pertaining to packaging, packing, physicial distribution, and merchandising of goods.*

new show-rooms at 110 Arlington Street, Boston. This office is under supervision of Harry W. Fiedler, and is operated under the name of Air Conditioning Utilities Co., which operates under the same name in New York, similarly under the supervision of Mr. Fiedler.

• **L. H. Gilmer Co.,** Philadelphia, announces appointment of Fred Sintes, Jr., as district manager for Louisiana, Mississippi and Arkansas, on the company's line of V-belts, Kable Kord flat belting, Cone belts, Winder belts and other textile belting. Mr. Sintes' headquarters will be in New Orleans.

• **Link-Belt Co.,** Chicago, Ill., announces that at the quarterly meeting of the board of directors, held in Chicago recently, William C. Carter and Edward J. Burnell were elected vice presidents.

• **Machinery and Allied Products Institute,** Chicago, announces that William J. Kelly, Chicago industrial executive and civic leader, has been elected president of the institute. Mr. Kelly is president of Arthur J. O'Leary & Son Co., manufacturers of iron and steel products, and will continue in that position. He is also president of the Economic Club of Chicago. In addition to his industrial background Mr. Kelly has had wide experience in the banking and commercial organization fields.

• **American Cyanamid & Chemical Corp.,** New York, is moving forward rapidly on plans for extensive expansion of the Charlotte, N. C., plant. It was announced by H. L. Derby, president, that one unit had been added and considerable additional equipment had been installed.

• **Wallerstein Co., Inc.,** and **Wallerstein Laboratories,** New York, announce removal of New York offices and laboratories to 180 Madison ave.

*Howard Parks, president Parks Cramer Co., Fitchburg, Mass. (left), and M. Murray Weiss, treasurer, W. & L. Engineering Co., Boston, Mass., at dinner of Boston Air Conditioning Bureau at Swampscott, Mass., Sept. 24.*

• **The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.,** Passaic, N. J., was recently awarded honorable mention for its industrial trade paper advertising at the annual convention of the National Industrial Advertisers Association held in Chicago.

# Textile World Analyst

**TEXTILE WORLD'S index of textile mill activity** for the first three-quarters of 1937 was 14% above that for the corresponding period of 1936, and 33% above the first nine months of a "normal" year (1924–31 average). All fibers participated in the increase. However, it should be noted that activity for the month of September, alone, was 8% below the same month last year. This general relationship is apt to continue for the rest of the year, since the late months of 1936 were a boom period, while at present the industry is caught in the slump affecting all business. In fact, students of the situation are glad to see production fall off, and hope for more of the same, in order that a healthier balance between supply and demand may be maintained.

## *Textile World's Price Index Numbers*

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Those who wish to continue with indices based on July 1, 1914, for chart purposes or otherwise, can secure conversion factors to change the new figures to the old by writing TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

| | Cotton Index Numbers | | | | Wool Index Numbers | | | | Silk Index | Rayon |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Cotton | Yarns | Gray | Colored | Wool | Tops | Yarns | Cloth | Raw-Silk | Index |
| **1923-25** | **100** | **100** | **100** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |
| 1930 ave. | 50 | 61 | 61 | 72 | 58 | 61 | 72 | 90 | 109 | 46 |
| 1931 ave. | 32 | 68 | 46 | 59 | 46 | 49 | 59 | 71 | 32 | 32 |
| 1932 ave. | 24 | 37 | 37 | 60 | 36 | 40 | 52 | 57 | 21 | 28 |
| 1933 ave. | 39 | 56 | 55 | 50 | 53 | 59 | 62 | 80 | 21 | 26 |
| 1934 ave. | 61 | 67 | 70 | 62 | 63 | 70 | 75 | 91 | 17 | 25 |
| 1935 ave. | 60 | 68 | 67 | 69 | 56 | 58 | 70 | 88 | 22 | 24 |
| 1936 ave. | 45 | 63 | 63 | 68 | 72 | 78 | 76 | 93 | 23 | 25 |
| Jan. 1936 | 48 | 67 | 63 | 68 | 67 | 73 | 75 | 93 | 26 | 24 |
| Feb. 1936 | 42 | 62 | 58 | 67 | 72 | 81 | 77 | 93 | 24 | 24 |
| Mar. 1936 | 42 | 61 | 57 | 66 | 73 | 81 | 77 | 93 | 23 | 24 |
| Apr. 1936 | 43 | 60 | 55 | 64 | 68 | 75 | 76 | 90 | 22 | 24 |
| May 1936 | 43 | 57 | 54 | 64 | 67 | 75 | 76 | 90 | 21 | 24 |
| June 1936 | 44 | 58 | 57 | 65 | 67 | 75 | 76 | 90 | 20 | 25 |
| July 1936 | 48 | 61 | 61 | 70 | 69 | 75 | 75 | 90 | 22 | 26 |
| Aug. 1936 | 45 | 62 | 63 | 70 | 70 | 75 | 74 | 90 | 23 | 26 |
| Sept. 1936 | 45 | 62 | 63 | 70 | 70 | 75 | 74 | 90 | 22 | 26 |
| Oct. 1936 | 45 | 64 | 67 | 71 | 71 | 75 | 74 | 92 | 23 | 26 |
| Nov. 1936 | 45 | 65 | 74 | 72 | 78 | 82 | 76 | 100 | 26 | 26 |
| Dec. 1936 | 48 | 72 | 80 | 74 | 87 | 90 | 84 | 105 | 26 | 26 |
| Jan. 1937 | 48 | 73 | 81 | 76 | 90 | 93 | 88 | 108 | 27 | 26 |
| Feb. 1937 | 48 | 74 | 78 | 76 | 90 | 92 | 90 | 108 | 27 | 26 |
| **Mar. 1937** | **53** | **78** | **80** | **78** | **87** | **88** | **90** | **112** | 27 | 26 |
| **Apr. 1937** | **53** | **80** | **82** | **80** | **84** | **86** | **90** | **112** | 27 | 27 |
| **May 1937** | **49** | **75** | **76** | **78** | **82** | **84** | **89** | **112** | 24 | 27 |
| **June 1937** | **47** | **70** | **71** | **78** | **78** | **82** | **88** | **112** | 25 | 27 |
| July 1937 | 45 | 65 | 67 | 78 | 78 | 82 | 88 | 112 | 26 | 27 |
| Aug. 1937 | 37 | 59 | 62 | 78 | 80 | 82 | 88 | 112 | 25 | 27 |
| Sept. 1937 | 33 | 54 | 56 | 73 | 78 | 81 | 87 | 107 | 25 | 27 |
| Oct. 1937 | 31 | 51 | 53 | 67 | 73 | 76 | 82 | 100 | 23 | 27 |

Fabric and yarn manufacturing margins follow:

TABLE I. CARDED FABRIC MARGIN

| Date | Margin in cents | Date | Margin in cents |
|---|---|---|---|
| August, 1933.. | 21.4 | March, 1936... | 15.5 |
| October, 1933. | 19.1 | April, 1936.... | 14.3 |
| January, 1934 | 18.4 | May, 1936..... | 14.3 |
| April, 1934... | 17.6 | June, 1936..... | 15.3 |
| July, 1934.... | 15.5 | July, 1936..... | 16.9 |
| August, 1934.. | 16.6 | August, 1936.. | 18.0 |
| September, 1934 | 18.6 | September, 1936 | 18.4 |
| October, 1934.. | 17.4 | October, 1936.. | 21.2 |
| November, 1934. | 15.8 | November, 1936 | 25.4 |
| December, 1934. | 16.2 | December, 1936. | 28.1 |
| January, 1935.. | 16.2 | January, 1937.. | 28.6 |
| February, 1935. | 16.0 | February, 1937. | 26.2 |
| March, 1935... | 15.9 | March, 1937... | 25.6 |
| April, 1935.... | 16.1 | May 1937..... | 23.1 |
| May, 1935..... | 16.0 | June, 1937.... | 21.2 |
| June, 1935..... | 16.5 | July, 1937.... | 20.1 |
| July, 1935.... | 15.2 | August, 1937.. | 19.4 |
| August, 1935... | 17.1 | Sept. 1937.... | 18.1 |
| September, 1935 | 17.9 | Oct. 1937..... | 17.3 |
| October, 1935.. | 17.7 | Oct. 6..... | 17.6 |
| November, 1935. | 16.4 | Oct. 13..... | 16.7 |
| December, 1935. | 16.2 | Oct. 20..... | 17.1 |
| January, 1936.. | 17.2 | Oct. 27..... | 17.7 |
| February, 1936. | 16.5 | | |

TABLE II. CARDED YARN MARGIN

| Date | Margin in cents | Date | Margin in cents |
|---|---|---|---|
| August, 1933... | 23.5 | March, 1936... | 16.3 |
| October, 1933.. | 20.0 | April, 1936.... | 15.6 |
| January, 1934.. | 18.3 | May, 1936..... | 14.8 |
| April, 1934.... | 15.9 | June, 1936..... | 14.3 |
| July, 1934..... | 14.7 | July, 1936..... | 15.0 |
| August, 1934... | 15.3 | August, 1936.. | 16.5 |
| September, 1934 | 15.6 | September, 1936 | 16.5 |
| October, 1934.. | 14.6 | October, 1936.. | 17.2 |
| November, 1934. | 13.5 | November, 1936 | 18.0 |
| December, 1934. | 13.5 | December, 1936. | 20.6 |
| April, 1935.... | 14.1 | January, 1937.. | 20.8 |
| September, 1935 | 15.4 | February, 1937. | 21.2 |
| October, 1935.. | 15.8 | March, 1937... | 21.3 |
| January, 1935.. | 13.5 | May, 1937..... | 21.2 |
| February, 1935. | 13.9 | June, 1937..... | 19.3 |
| March, 1935... | 14.4 | July, 1937..... | 17.8 |
| May, 1935..... | 13.8 | August, 1937.. | 17.2 |
| June, 1935..... | 14.5 | Sept. 1937.... | 16.1 |
| July, 1935..... | 14.3 | Oct. 1937..... | 15.3 |
| August, 1935... | 15.3 | Oct. 6..... | 16.2 |
| November, 1935. | 16.3 | Oct. 13..... | 15.2 |
| December, 1935. | 16.3 | Oct. 20..... | 14.7 |
| January, 1936.. | 18.4 | Oct. 27..... | 14.9 |
| February, 1936. | 17.5 | | |

# The Personal Page

**Peter Ross,** formerly president of Clyde Piece Dye Works, Paterson, N. J. and the Lodi (N. J.) Piece Dye Works had been elected president of the recently organized Guaranty Piece Dye Works, Paterson, N. J.

**Stephen A. Walser,** formerly with Schwarzenbach Huber Co. for many years resigning his post as vice-president and general manager there in June, 1936, has resumed partnership with **Thos. B. Hill** in the Hill & Walser Co., greige goods, New York.

**William H. Beattie,** of Greenville, S. C. carried chief golf honors at the Beattie-Watts 1937 reunion held recently at Biltmore Forest Country Club, Asheville, N. C. Twenty-six textile executives and bankers of Greenville, S. C., New York and intermediate points enjoyed the "stag party." Mr. Beattie was winner of the low gross 36-hole match of the golf tournament; **M. C. Branch,** of Richmond, Va., clinched the low net 36-hole contest; **Ridley Watts,** of New York, took the low gross 36-hole round, and **Tom Estes,** of New York the low net 18-hole play.

**Charles H. Dimick,** general manager of Textile Dyeing & Printing Co. of America, Inc., Fair Lawn, N. J., has been elected president of that company, it was announced Oct. 28 by **Conrad Wirth,** chairman of the board.

**Sylvan I. Strook,** president of S. Strook & Co., Newburgh, N. Y., addressed the American Association of Textile Technologists at its meeting No. 3 in New York. He discussed rare fiber-bearing animals and the fabrics made from their coats; as well as fabric misrepresenting and fabric identification.

**Harris H. Bucklin,** treasurer, Interlaken Mills, Fiskeville, R. I., has resigned that post due to ill health, and **J. Frank Morrissey,** general superintendent, has been named to succeed him. Mr. Morrissey also has been elected a director. Mr. Bucklin retains the offices of vice-president and director.

**Robert H. Lawson** is now associated with Lawson Products, Inc., novelty knit fabrics, Pawtucket, R. I., of which his father, John Lawson, is president. Robert Lawson has resigned his connection with the Hemphill Co., Pawtucket, with which he was associated 14 years. The younger Mr. Lawson will continue his development work which in the past has resulted in such devices as the nib-jack pointed-heel machine, reverse plating for fancy hosiery, fancy hosiery attachments, wrap stripe automatic machine, etc.

**John Rakestraw** has been elected president, Hyde-Rakestraw Co., cotton yarn distributors, Philadelphia, succeeding his father, the late Fred A. Rakestraw.

**J. Ben Cooper,** formerly of Statesville, N. C., has become vice-president of the Diamond Full-Fashioned Hosiery Co. at High Point, N. C., and will manage the manufacturing department of the company.

**Clifford Jessop,** formerly an industrial mediator for the U. S. Department of Labor, has been retained as impartial chairman for the recently formed Silk and Rayon Manufacturers Association of Paterson, N. J.

**Robert R. Ray,** treasurer and general manager of McAden Mills, McAdenville, N. C., recently celebrated his 85th birthday, and at the same time his 53 years as treasurer and general manager of these mills. Mr. Ray is the oldest cotton-mill executive in Gaston County in point of service, and perhaps the oldest in North Carolina. He is known as the "Grand Old Man of Gaston."

**Frank J. Knell** has been elected president of the New York Wool Top Exchange, succeeding the late A. C. Beane. **John E. Smith** was elected to succeed Mr. Beane as a member of the board.

**Harry A. Mereness,** during recent years, textile expert on standardization for the Federal Government at Washington, and formerly technical director of the National Federation of Textiles, has been retained by the National Federation as director of research.

**D. A. Stansell** has succeeded **Fred L. Still** as manager of the Victor plant of Victor-Monaghan Co., Greer, S. C.

**Frank Asbury,** formerly superintendent of Hillside Cotton Mill, La Grange, Ga., is now assistant to **E. S. Dunn,** general superintendent of Avondale Mills, Birmingham, Ala.

**Alfred Codman, Jr.,** has been made manager of a new Chicago office of Franklin Rayon Corp., Providence, R. I.; the Chicago office will cover nine central states.

**Walter M. Clarke** will represent Foreman Silks Co., of New York, on the Pacific Coast; he will also act as style adviser, interpreting new Hollywood trends.

**H. W. Shirreffs** has resigned as treasurer of the sales agency for the Worumbo Co., New York.

**Chas. H. Huggins, Jr.,** has been made an assistant department head in the wash goods department, Pacific Mills, New York.

**Harold C. Barney** has become associated with American Dyeing Corp. in a sales capacity, with headquarters at the company's New York office.

**W. A. Spafford,** raw silk broker and textile publicist, has given up his raw silk business in New York and become associated with Newburger, Loeb & Co., New York.

*DONALD COMER, president of Avondale Mills, Sylacauga, Ala., who was elected chairman of the board. His brother, B. B. Comer, Jr., vice-president, was chosen to succeed him as president, at the annual directors' meeting in Sylacauga, last month. The directors also elected the following: vice-presidents—Hugh Comer and J. Craig Smith, Sylacauga; Thomas Bowron, Herbert C. Ryding and Erskine Ramsay, all of Birmingham, Ala.; assistant vice-presidents—B. B. Comer, III; Chas. S. Northern, A. F. Mullins and E. S. Dunn, all of Sylacauga.*

**Brandon Smith, Jr.,** has become associated with the Charlotte, N. C. office of Royal Mfg. Co., dealers in cotton, cotton yarn and cotton waste.

**Chas. B. VanNest** is celebrating the completion of 50 years activity in the underwear market. Mr. VanNest, who commutes daily to New York, from Maplewood, N. J., has been a salesman for Utica Knitting Co. for 38 years.

**Henry Brandt,** formerly with Cohn-Hall-Marx Co., New York, has become associated with the brokerage office of Yankauer & Brush, New York, and will specialize in novelty shirtings and handkerchief cloths.

**J. R. Timmes** took first honors with low net score of 27 holes in the sixth golf tournament of the Textile Banking Co., New York, which was held recently at the Blue Hill Golf and Country Club at Orangeburg, N. J. **C. L. Mathews** won second prize for low net 18 holes; **H. Mapes** won third prize for low net first 9 holes and **J. Lorigan** won fourth with low net second 9 holes.

**Basil Gibson** has been appointed manager, and **John Day,** superintendent, of the reorganized Brenham (Tex.) Cotton Mills.

**James J. Brogan,** superintendent of the Axminster division of the Beattie Mfg. Co., Little Falls (N. J.) and widely known in the carpet manufacturing industry, has retired.

**William Skinner Kilborne** of New York has joined the sales force of the William Skinner & Sons silk mills, Holyoke, Mass., with headquarters at the New York office. He is a grandson of the late William Skinner, founder of the company, and is a nephew of Joseph A. Skinner and William Skinner.

**George Manton,** formerly manager of the Central Falls (R. I.) plant of the National Silk Spinning Co., has been

### *Textile Calendar*

- **U. S. Institute for Textile Research, Inc., Annual meeting, Hotel Commodore, New York, Nov. 12, 1937.**
- **Sixteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 6 to 11, 1937.**
- **American Association of Textile Chemists and Colorists, annual meeting, Bellevue-Stratford Hotel, Philadelphia, Dec. 3 and 4, 1937.**
- **Fifth International Heating and Ventilating Exposition, Grand Central Palace, New York, Jan. 24 to 28, 1938.**

made manager of the New Bedford (Mass.) factory, succeeding **James Conway**, transferred to the New York office.

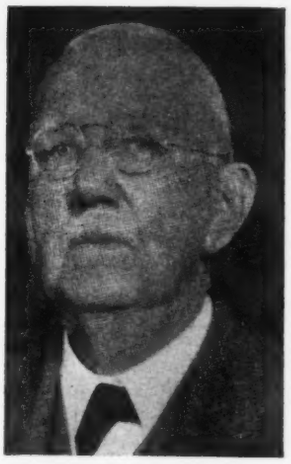
H. **N. Vickerman**, vice-president in charge of sales, is now located at the Indian Orchard (Mass.) factory of the Hodges Carpet Co. **L. W. Brooks** has been placed in charge of the Axminster sales division and **W. H. Wright** now heads the fiber rug and fabric sales division.

**Arthur W. Worrall**, representing Shaw-Jardine, Ltd., has established a yarn firm under the name of the Arthur W. Worrall Co., Providence, R. I., and has also opened a branch office in New York City.

**Henry Bettis Malone, Jr.**, who has been connected with the dyeing department of Burlington (N. C.) Mills since his graduation in 1936 from the Textile School of Clemson College, has been elected a textile research fellow at the North Carolina State College.

**Clarence E. Wylie** has resigned as assistant purchasing agent for the Springs Cotton Mills with headquarters at Lancaster, S. C., and has accepted the position of purchasing agent for the Greenwood (S.C.) Cotton Mills.

**A. R. Haller** has become superintendent of the Cowan Mills, Lewiston, Me., and George Bouldry, assistant superintendent of the same concern. Both were previously in Dover, N. H.



*CAPT. ELLISON ADGER SMYTH, president of Balfour (N. C.) Mills, Inc., celebrated his 90th birthday Oct. 26, in his usual round of executive duties at the mill. Capt. Smyth, "Dean of Southern textile manufacturers", divides his time between the mill and his country estate, "Connemara", at Flat Rock, N. C.*

**William F. Staples** of Taftville, Conn., has been appointed to succeed **William Worsnop** as general manager of the Cabot Mfg. Co., cotton and rayon fabric manufacturers, Brunswick, Me. Mr. Staples was treasurer and manager of the Ponemah Mills, Taftville, Conn., manufacturers of rayon and cotton cloth.

**P. Warren**, formerly of Covington, Va., has become superintendent of the Cascade Rayon Mills, Mooresville, N. C.

**K. C. Etters** has been appointed assistant purchasing agent for the Springs Cotton Mills with headquarters in Lancaster, S. C.

**Clinton T. Andrews**, who has been prominently connected with the Elliott Hosiery Mills, Hickory, N. C., has resigned to become associated with the Phoenix Mutual Life Insurance Co., Hickory.

**Henry E. Rauch** has been re-elected president of the Moore's Falls Corp., Manchester, N. H. **F. C. Dumaine** was chosen treasurer; **John R. McLane**, clerk.

**K. M. Lowry** has been appointed cost accountant for the Eureka, Springstein and Gayle units of the Springs Cotton Mills, Chester, S. C.

**J. D. Green** is now superintendent of the Lancaster, S. C., plant of the Springs Cotton Mills.

## *Obituary*

**Mendel Bornstein**, aged 68, president of M. Bornstein & Sons, Paterson, N. J., silk manufacturers, died Oct. 15, in that city.

**Leonard J. Tynan**, aged 69, organizer of the Century Throwing Co. and later president of the Tynan Throwing Co. both of Paterson, N. J., died there Oct. 16 of pneumonia.

**Hiram W. Kirby**, aged 62, president, Cowpens Mills, Spartanburg, S. C. died Oct. 7 at his home there.

**Wm. R. Sweatt**, chairman of the board of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., died Oct. 12.

**Thomas W. France**, for 33 years representative of H. W. Butterworth Sons Co., Philadelphia, in the New England territory and operating out of Providence, R. I., died Sept. 26.

**William Hammond Moses**, aged 74, who started learning cloth-making in the Tilton Mills, Tilton, N. H., in 1890, and became company president, retiring in 1909, died Oct. 8.

**Nathan S. Althouse**, aged 83, retired chemical manufacturer, died recently in a Reading, Pa., hospital, following a long illness. For many years he was identified with the Althouse Chemical Co., the Neversink Dyeing Co., Inc., and the Pennsylvania Dye & Bleach Works, Inc.

**Henry Foster**, aged 65, formerly superintendent of the Jamestown Worsted Mills, Jamestown, N. Y., and the Ferncliff Mills, Falconer, N. Y., died recently in Brooklyn, N. Y., following a brief illness. In later years he had been identified with the Keyser Worsted Mills, Keyser, W. Va.

**Fred L. Sayles**, aged 72, for many years identified with A. L. Sayles & Sons, Providence, R. I., died in that city Oct. 8.

**O. F. Kendall**, aged 93, former partner in L. C. Chase & Co., Boston, Mass., agents for the Sanford Mills and Troy Blanket Mills, at Cambridge, Mass., died Oct. 8.

**J. P. Rawley**, vice-president, Premier Silk Mills, High Point, N. C., died recently at High Point.

**Wm. C. Robb**, who was well known in the textile industry through 35 years service with General Dyestuff Corp., died Oct. 5 at his home in Philadelphia.

**John Fairley Scott**, aged 68, retired textile mill official, died Oct. 4 at Reidsville, N. C. His textile career started 37 years ago when he became connected with Cannon Mills; later he formed several companies, and since 1915 had been manager of Edna Cotton Mills, Reidsville, N. C.

**Channing Sweitzer**, aged 49, managing director and treasurer, National Retail Dry Goods Association, died Oct. 5 at his home, Ridgewood, N. J. He had been managing director of the N.R.D.-G.A. for nine years.

**Felix Lowy**, aged 49, vice-president and general manager, Holeproof Hosiery Co., Milwaukee, Wis., died Oct. 5 in that city following an operation. Mr. Lowy was with Colgate-Palmolive-Peet Co. for many years, resigning in 1933 to join Holeproof.

**Charles Burton Hayward**, aged 60, president of Chas. B. Hayward Co., textile exporters, New York, and mayor of Englewood, N. J., died last month at his home in Englewood, N. J.

**Wm. J. Hines**, aged 67, wool buyer, for 52 years in the service of the Bigelow-Sanford Carpet Co., died Oct. 12 of pneumonia at Thompsonville, Conn.

**Edward Jefferson**, aged 70, for many years an importer of textile machinery, died Oct. 12 in Philadelphia, after a year's illness.

**Henry H. Ellison**, aged 84, senior member of the woolen firm of John B. Ellison & Sons, Philadelphia, Pa., died Oct. 7 in Rosemont, Pa.

**Obe G. Morrison**, retired textile manufacturer, died Oct. 5 at his home in Tilton, N. H. In 1886, with his nephew E. G. Morrison as partner, he established the present Elm Mills Corp., Tilton, which firm was sold a few years ago.

**Harry L. Wissing**, aged 57, textile credit executive and connected with Mill Factors Co. New York, in recent years, died Oct. 5 at Long Beach, N. Y.

**Oscar Goldsmith**, aged 88, for many years assistant treasurer, Dallas Mfg. Co., Huntsville, Ala., died Oct. 11, in that city.

**Maurice L. Witkoff**, member of the firm of Baumring & Witkoff, hosiery agents, New York, died recently at his home in Brooklyn, N. Y.

**Frank E. Kaufman**, aged 32, superintendent Kaufman Plush Co., Philadelphia, died Oct. 13 in that city after a short illness.

**Ira W. Greer**, aged 60, for 35 years paymaster for the Georgia-Kincaid Mills, Griffin, Ga., died Oct. 11.

**Lewis E. Bentley** died Oct. 27 in New Bedford, Mass., age 76. He retired as general superintendent of New England Cotton Yarn Co.'s mills in New Bedford in 1915.

**Alvan Newton Davenport**, aged 92, retired cotton goods manufacturer, died Oct. 13, at Northboro, Mass.

# Cotton Digest

THE comprehensive study of "Cotton Consumption in the United States" by Charles K. Everett, manager of the New Uses Section of the Cotton-Textile Institute, made an important contribution when published in the September number of *The Annals* of the American Academy of Political and Social Science. Its importance was materially enhanced, however, when reprints were sent to members of Congress, other Government officials, newspaper writers, Governors of the cotton-growing States, etc. Carrying as they did a collection of appended fabric swatches which for practical reasons could not accompany the original presentation of the treatise in *The Annals,* the reprints facilitated identification of the representative types of industrial and apparel fabrics referred to in the article.

The whole job was a constructive piece of promotion.—*Editor.*

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**N.C. Manufacturers Meet —** From 300 to 400 cotton mill officials were present at the annual convention of the Cotton Manufacturers Association of North Carolina held Nov. 4 and 5 at the Carolina Inn, Pinehurst, N.C. The program was of the forum type, with no lengthy formal addresses. Herman Cone, president of the association, presided.

•

**Hall Heads Yarn Spinners**—R. D. Hall, of Belmont, N.C., was reelected president of the Southern Combed Yarn Spinners Association at the annual meeting held last month at Gastonia, N.C. R. B. Suggs, Belmont, was reelected first vice-president, and L. L. Hardin, Clover, S.C., was elected second vice-president.

•

**New Competition For Sheets?**—Designed to replace cotton in sheets, pillow cases, babies' diaper linings, maids' uniforms, etc., a new cellulosic compound has been introduced by Brown Co., Portland, Me. The material, known as Pervel, is made of spruce and is said to be cool, smooth, soft and absorbent. It is expected to be especially useful in connection with garments or coverings used by the sick or used under conditions where sanitation is essential. The sheets and cases will withstand laundering, but are said to "sell at less than the cost of laundering." It is claimed that bed covering of Pervel will last from four days to a week. Experiments are being made with regard to the possibility of impregnating the material with scents such as spruce.

•

**Yarn Trade Practices Discussed**—Further steps toward formation of a uniform sales contract for the cotton-yarn spinning industry were made last month at Charlotte, N.C., at a joint meeting of members of both the carded- and combed-yarn groups of the industry. One of the evils which is hoped to be eliminated eventually is the practice of some purchasers to buy production from spinners and then fail to send shipping orders. F. C. Roberts is chairman of the committee and Owen Fitzsimmons is secretary. Hyman Battle and R. L. Harris represent the carded-yarn mills, and A. K. Winget and Harold Lineberger represent the combed group. Further meetings will be held with other groups in the industry.

•

**Markets Fight Price Reductions**—Despite a number of major shocks to market confidence, such as the 17,573,000-bale estimate, the October gray-goods situation showed considerable resistance to price pressure. Sales of both print cloths and sheetings expanded. The 38½-in., 64x60, 5.35 yd. print cloth opened at 5c, and later eased off ¼c. There were reports of sales at 4⅞c. although they were not made public. Chief developments in the yarn market were a distinct resistance to attempts to beat down prices and an increase in the number of inquiries.

•

**Thread Group Considers Trade Rules**—A six-point program calling for elimination of unfair trade practices was submitted to the Cotton Thread Institute, Inc., at its annual meeting last month held at the Biltmore Hotel in New York. The proposal was presented by Josef Pollack, of Max Pollack & Co., president of the institute, who was authorized to appoint a committee to draft rules for submission to the membership and later to the Federal Trade Commission. R. D. Hall, president of the Southern Combed Yarn Spinners Association, was present and announced that his association is drawing up a set of trade rules which will later be submitted to the Thread Institute and other buying groups. Speakers included Dr. C. T. Murchison, president of the Cotton-Textile Institute, and Russell Fisher, president of the National Association of Cotton Manufacturers.

•

**Carolina Yarn Party**—The eighth annual golf tournament of the Carolina Yarn Association was held Oct. 29 and 30 at the Carolina Inn, Pinehurst, N.C. N. P. Murphy, of Greensboro, N.C., is president of the association.

•

**"Do You Want Sea Island Cotton?"**—The Florida State Department of Agriculture is advertising 5,000 bales of Sea Island Cotton for sale as a result of recent attempts to revive the long-staple growth which had become practically extinct. The State is also asking mills to let it know how much demand there is for this type cotton, promising more if there is a real need. A recent lot of 35 bales sold for over 25c lb.

•

**Wallace Cuts 1938 Acreage**—An additional reduction of 2,000,000 acres in the 1938 cotton-control program was announced recently by Secretary of Agriculture Henry A. Wallace. Rate of payment to farmers participating was increased to 2.4c.

•

**Export Prospects**—Exporters of cotton goods are mildly optimistic over the possibility of increased foreign trade due to lessening of the competitive advantages of foreign nations. Many observers, however, look on present conditions as merely temporary.

•

**Japanese May Curtail 32.4%**—Extension of the present curtailment rate by Japanese spinners may be increased to 32.4%, it is reported, due to shortage of raw cotton and general upset conditions in the East.

•

**Key Cotton Prices** with usual comparisons follow:

| | Nov. 1, 1937 | Oct. 1, 1937 | Nov. 1, 1936 | Nov. 1, 1935 |
|---|---|---|---|---|
| Spot Cotton, N. Y. | 8.03 | 8.55 | 12.08 | 11.40 |
| Ditto, high previous month | 8.78 | 9.56 | 12.64 | 11.40 |
| Ditto, low previous month | 8.05 | 8.46 | 12.01 | 11.05 |
| 10s hosiery cones | 19 | 21 | 26 | 29½ |
| 10s/2 carded skeins | 19½ | 22 | 26 | 28½ |
| 20s/2 carded peeler warps | 22 | 24½ | 29½ | 31½ |
| 60s/2 combed peeler warps | 49 | 52 | 55 | 57½ |
| 60s/2 mercerized cones | 65 | 67 | 69 | 72 |
| 37 in., 3-yd. drill | 7½ | 7½ | 9 1/16 | 9 7/16 |
| 38½-in., 64 x 60s | 5¾ | 5 | 7 1/16 | 6⅜ |
| 36-in., 4-yd. 56 x 60s | 5¾ | 6¼ | 7 1/16 | 6⅜ |
| Denim, 2.20s | 12 | 15 | 14 | 15½ |

•

**Statistics** of particular interest to cotton manufacturers showing September operations and the raw material situation:

| | September | August |
|---|---|---|
| Spindle activity (% capacity) | 124.1 | 130.5 |
| Spindle activity (millions of hours) | 7,658 | 8,184 |
| Cotton consumed (bales) | ..... | 604,380 |
| Cotton exported (bales) | ..... | 220,415 |
| Cotton imported (bales) | ..... | 8,458 |
| Ginned to October 18 (bales) | 11,068,319 | ..... |

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## Cotton
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TEXTILE WORLD'S

# Wool Digest

BOTH the National Association of Wool Manufacturers and the industry it represents deserve credit for the firm stand in maintaining f.o.b. mill billing and other terms of sale against pressure by buyers for change. Not only are logic and equity on the side of the industry in the specific points involved, but from a broad standpoint it is necessary to resist attempts to break down standard selling practices, the adoption of which has represented years of hard work. Those standards are for the good of the industry itself—*and its customers*—and they should not be yielded under pressure.—*Editor.*

**Market Uncertain with Trend Lower**—The market position at the opening of November was uncertain following reduction in spring prices of 5 to 10c per yard by American Woolen and several other firms. The American made the new figures apply to spring business already on the books. The decline in raw wool, tops and yarns, coming on top of a slow retail trade, made sellers' prices, carefully figured as of early September, seem uninteresting and out of line. Although mills were as careful as possible to avoid cracking the market prematurely, there had been an undercurrent of second hand selling and stock clearances of piece goods as much as 30% under the nominal market level. Clothier's volume of distribution may slump as a natural reaction to the unusually good business last winter and their buying will probably be restrained for spring no matter what price basis evolves. They are asking for price guarantees, for protection is more important to them than merely low prices. The industry is unlikely to comply.

•

**Japan Turns from Wool to Staple**—A recent report from Japan states that the Government has asked the Japan Woolen Manufacturers Association to substitute rayon staple fiber for wool to the extent of 40% of their annual consumption. The purpose of this request is to reduce the yen exchange requirements for imported wool. Rayon staple today is being produced in Japan at the rate of about 175,000,000 lb. per year, and the substitution mentioned should increase this figure by 55,000,000 lb.

•

**Promoting "The Balanced Wardrobe"**—A concise little mailing piece, effectively embossed and printed in seven colors, designed by Associated Wool Industries to visualize "A Balanced Wardrobe," is being sent to men's wear departments of 7,000 retail stores. The folders will be available to stores in quantities at a nominal cost for distribution to their customers. The introductory statement defines the theme of the booklet as follows: "A man's suits are divided into five major groups. By planning your buying to include each group, you will balance your wardrobe economically and have the right thing for each occasion. . . . This is the basic principle of correct dress."

•

**Seek Wool Market "Decentralization"**—A Senatorial committee is said to be formulating plans for hearings on the subject of legislation aimed at decentralizing the country's wool market. It is said that the committee, headed by Senator Adams of Colorado, has heard complaints from wool growers over allegedly unfair practices in Boston and other centers. The committee may recommend that wool be made subject to the Commodities Exchange Administration or that steps be taken to regionalize its marketing. The object in either event is to bring greater profit to the farmer for his clip.

•

**Wool Top Prices Drop**—Wool tops, which had been sagging through August and September, dropped sharply in October. The standard spot quotation in New York opened the month at $1.06, was $1.01½ on Oct. 8, 99¢ on Oct. 15 and 98¢ on Oct. 23, recovering from a dip several cents lower. Trading had spurts of activity and considerable volume changed hands. There has lately been a rush for memberships in the New York Wool Top Exchange and all seats on the $1000 basis are reported sold.

•

**Wool Prices Uncertain**—The decline in wool prices, says the Department of Agriculture, together with the unsettled conditions in foreign markets, leaves the question of wool prices somewhat uncertain. Quotations have been largely nominal in view of the light trading. Though somewhat above last year, domestic stocks of raw wool are below average; however, domestic mill demand for wool is less favorable than a year ago.

•

**Sterilizes Wool**—A process that sterilizes wool fabrics without damaging the fibers has been discovered by three workers in the Department of Agriculture. Although this method has as yet been tried only under laboratory conditions, it is believed to have practical possibilities for commercial use. Heretofore any process that killed the microorganisms in the wool did considerable damage to the material itself. But the Department's research workers found that by heating the material in xylene, an organic liquid, they could sterilize the wool and leave it essentially unchanged otherwise. They found Stoddard solvent and tetrachlorethylene were also successful when used in place of xylene. The two types of microorganisms that it is necessary to kill are those that cause disease and those that damage the wool itself. Army supplies, clothing contaminated by flood waters, and hospital blankets must be sterilized to prevent spread of disease. And mildewed blankets contain organisms that affect wool fiber itself.

•

**Wool Stocks Slightly Above Year Ago**—The quarterly wool stock report issued by Bureau of the Census as of Sept. 25, 1937, notes 135,259,000 lb. (scoured basis) of apparel wool on hand against 126,846,000 on Sept. 26, 1936 and 142,554,000 on June 26, 1937. Most of that small increase from a year ago is in the hands of dealers, only a small gain being shown in mill stocks. Since June dealers' stocks have risen 7% and mill stocks declined 18%. Carpet wool stocks are 42,269,000 lb., against 33,116,000 a year ago and 35,649,000 in June.

•

**American Woolen Conferences**—Progress was reported in October in the conferences between American Woolen Co. officials, CIO representatives and 20 workers chosen from 140 delegates from the Wood and Ayer mills.

•

**Wool in Tires?**—The *Yorkshire* (England) *Post* is quoted as saying that Wensleydale sheep wool is being tried out for the manufacture of "motor-car tire linings."

•

**Key wool prices** with usual comparisons, follow:

| | Nov. 1, 1937 | Oct. 1, 1937 | Nov. 1, 1936 | Nov. 1 1935 |
|---|---|---|---|---|
| Fine and fine med. territory | $0.83 | $0.93 | $0.88 | $0.68 |
| Onio ⅜s | .38 | .43 | 40½ | 36½ |
| Tops fine 64–66s | 1.03 | 1.14 | 1.13 | 1.02 |
| Average ⅜s | .92 | 1.03 | .95 | .87½ |
| High ¼ | .88 | .98 | .88 | .81 |
| Noils, fine | .67 | .73 | .68 | .64 |
| ¼ | .52 | .58 | .55 | .49½ |
| 2-40s 60s wstd. yarn | 1.65 | 1.77½ | 1.55 | 1.44½ |
| 8020 serge | 2.00 | 2.15 | 1.87½ | ..... |

•

**Current statistics** on wool consumption and mill activity:

| | September (4 weeks) | August (4 weeks) |
|---|---|---|
| *Wool consumed, clean equiv.* | | |
| Apparel wool, lb. | 17,304,000 | 20,044,000 |
| Carpet wool, lb. | 7,260,000 | 8,668,000 |
| *Machinery activity (40-hr. shift)* | | |
| Looms (50-in. and wider) | 72.7% | 93.0% |
| Carpet looms | 70.4% | 76.4% |
| Combs | 94.1% | 110.4% |
| Worsted spindles | 57.9% | 73.4% |
| Woolens spindles | 92.9% | 113.1% |

## *Wool*

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# Rayon & Silk Digest

CHANGING market conditions have a way of rendering unimportant, matters which have previously been discussed as burning questions. A case in point is the effect of the enforced curtailment on the proposed elimination of third-shift operation in rayon weaving. That subject has become purely academic for the time being.

However, it would be well for the industry to consider this a postponement, rather than an abandonment, of that discussion. No matter what side of the fence an individual manufacturer may be on, he should realize that sooner or later the question of policy in this practice must be faced frankly. Consequently a little dispassionate thought at this time when members of the industry can be objective in their thinking, might be in order.—*Editor.*

**Rayon Weavers Meet**—Meeting in executive session at its annual meeting in New York, the National Rayon Weavers Association on Oct. 27, elected R. E. Henry, president, Dunean Mills, Greenville, S. C., and president of the American Cotton Manufacturers Association, as chairman of the board. Mr. Henry succeeds Nathaniel F. Ayer, treasurer of Cabot Mfg. Co., Brunswick, Me. C. W. Dall was reelected to his triple post of president-secretary-treasurer, and Paul Whitin, of Paul Whitin Mfg. Co., Northbridge, Mass., and George M. Wright of Republic Cotton Mills, Great Falls, S. C., were elected first and second vice-presidents, respectively. The meeting was followed by an informal dinner at which the weavers were hosts to a group of leading yarn producers, who comprised S. A. Salvage of American Viscose Corp., L. A. Yerkes, of Rayon Division, E. I. du Pont de Nemours & Co., Hiram S. Rivitz, of Industrial Rayon Corp., and B. C. Dunlop, of North American Rayon Corp. F. W. Morrison, of Washington, D. C., spoke on the recently promulgated F.T.C. rayon rules.

•

**New Acetate Yarn Out**—Marketing of a new domestic acetate yarn, 100 denier, 5 filament, was announced recently by the Acetate Division of the E. I. du Pont de Nemours & Co. The number takes the place of one the firm had previously imported.

•

**Store Champions Rayon**—Rayon was extolled as a high fashion and prestige fabric both in advertising to the consumers and in special bulletins to sales personnel by Bonwit Teller, Inc., New York, last month. The sales personnel bulletin urges employees to combat the "negative reaction to rayon among customers."

•

**"Parade" Ads Analyzed**—Analysis of advertisements used by American stores during the recent "Silk Parade" showed that "quality" and "elegance" were the two terms highlighted in describing silk merchandise, the International Silk Guild reported. Other ads stressed luxury, economy, fashion rightness, while a third group emphasized the traditional prestige of silk, tallying it with the prestige of the individual store.

•

**Fabric Sales Drop**—A decisive decline in sale of rayon woven goods in the greige occurred in September against August, according to the monthly figures of the National Federation of Textiles and National Rayon Weavers Association. The index of total deliveries fell from 152 in August to 135 in September. Key figures for the month follow:

| 1934 = 100 | Sept. 1936 | Aug. 1937 | Sept. 1937 |
|---|---|---|---|
| Taffetas, twills, linings and other staples | 274 | 254 | 232 |
| Dress goods, novelties, and other fancies | 111 | 99 | 84 |
| Total | 167 | 152 | 135 |

•

**Boycott Japanese Rayon Here?**—J. Edward Gilbert, executive secretary of the League for Protection of American Standards announced Oct. 9 that that body while opposing both Japanese rayon and silk merchandise, would boycott the former more vigorously than the latter because "we have no other source of supply for silk."

•

**"Fashion Futures" Nov. 22**—Miss Dorothy Shaver, vice-president, Lord & Taylor, New York, and board chairman of the Fashion Group, Inc., announced Oct. 9, that "Fashion Futures—American Edition" would be held at the Waldorf-Astoria Hotel, New York, on Nov. 22 instead of Nov. 10, as originally scheduled. Committees of the Group totalling 200 persons are working on plans for this classic fashion show.

•

**Silk Prices Off**—Raw silk receded, both in prices and deliveries during October, due generally to lack of mill interest. Crack double extra 13/15 white 78% which sold at $1.69½ on Oct. 1 was down to $1.65 on Nov. 1.

•

**May Curtail in December**—The continued lull in rayon yarn buying was welcomed by producers through October because it helped them to catch up with orders; stocks in producers' hands Nov. 1 approximated two weeks' sales. It is understood that if the expected spring business does not develop this month, yarn production may be curtailed in December.

•

**Onondaga Accents Stripes**—An extraordinarily wide range of stripes, including curves, twists, bends, flower and feather stripes, lent distinction to the Palm Beach showing of prints by Onondaga Silk Co., in New York last month. Brilliant coloring, novelty satins, exotic designs, were among the features of a notably interesting fabric display.

•

**Bemberg-and-Silk Satin Proves a Hit**—Introduced a few weeks ago, a new line of woven underwear fabrics, made of Bemberg-and-silk, has won quick popularity in the underwear trade, American Bemberg Corp. reports. The fabric is being vigorously promoted and the company forecasts for it "a success equal to the sheers."

•

**Key rayon prices** and statistics follow:

| Prices | Nov. 1, 1937 | Oct. 1, 1937 | Nov. 1, 1936 | Nov. 1, 1935 |
|---|---|---|---|---|
| Viscose process | | | | |
| 75 denier (18–30 fils.) | $0.93 | $0.93 | $0.90 | $0.87 |
| 100 denier (40 fils.) | .82 | .82 | .79 | .76 |
| 150 denier (40 fils.) | .63 | .63 | .60 | .57 |
| Acetate process | | | | |
| 150 denier | .63 | .63 | .60 | .60 |
| Cupra. process | | | | |
| 150 denier (112 fils.) | .68 | .68 | .65 | .62 |
| Rayon staple 1½, 3 and 5½ denier | .25 | .25 | .28 | ..... |

Indices of Deliveries*

| Month | Oct. | Sept. | Aug. |
|---|---|---|---|
| In year 1937 | 285 | 445 | 530 |
| In year 1936 | 504 | 537 | 633 |

* "Rayon Organon," Exclusive of Acetate. Daily average 1923–25 = 100.

•

**Key silk prices** and statistics follow:

| Prices | Nov. 1, 1937 | Oct. 1, 1937 | Nov. 1, 1936 | Nov. 1, 1935 |
|---|---|---|---|---|
| Crack XX 13/15 white 78% | $1.67½ | $1.69½ | $1.82½ | $2.14½ |
| Tram, 5thd Japan 85% | 2.51 | 2.55 | 2.53 | 2.95 |
| Tram Crack XX 78% | 2.36 | 2.38 | 2.38 | 2.80 |
| 60s-2, spun silk | 3.15 | 3.15 | 2.95 | 2.95 |

| Statistics | Imports | Approximate deliveries | Stocks at warehouses |
|---|---|---|---|
| Oct., 1937 | 32,879 | 36,002 | 40,834 |
| Sept., 1937 | 36,146 | 36,372 | 43,957 |
| Aug., 1937 | 36,246 | 33,557 | 44,183 |

## *Rayon & Silk*

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TEXTILE WORLD'S

# Knit Goods Digest

EXAMPLES of the many constructive efforts engaging the attention of all the branches of the knitting industry are found in the programs which were submitted by the Underwear Institute and the National Knitted Outerwear Association to the Jury of Award of the American Trade Association Executives, and for which certificates of recognition were given.

The entry of the first-named group was its statistical program, and particularly its publication "Business Building Facts," published in September 1936. The outerwear program involved the formulation of a uniformly fair policy on the matter of returns of bathing suits.

These efforts, and many others being undertaken by the different textile associations, represent our main reason for staying bullish on textiles no matter what the stock market may do.—*Editor.*

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**Brand Prices Firm**—Prices of branded lines, both hosiery and underwear were holding steady during October, despite the antics of the raw materials markets. Spokesmen for various of these firms said they hoped to hold current levels through the holiday season.

•

**Britain Restricts Jap Imports**—Imports of Japanese hosiery exclusive of silk or rayon lines, into Great Britain are restricted for a three year period under a compact just consummated between the National Federation of Hosiery Associations and the Japanese Hosiery Exporters Association. The agreement, which is somewhat similar to that enacted between the Japanese and our own national association, limits imports to 70,000 doz. prs. of cotton hose annually.

•

**All-Elastic Sox Offered** — Use of elastic textile yarn in hosiery was advanced a step further this month with the announcement of an all-elastic half-hose. The sock, except for the sole, is knitted entirely of elastic yarn; it is claimed the sock is unusually snug fitting as well as being self-supporting.

•

**Wool Socks Gain**—Decisive gains in sales of men's wool socks are announced by the Associated Wool Industries. The association reports that the first seven months of 1937, as compared with the corresponding months of 1936, show increases in wool socks as follows: January 34%; February 188%; March 100%; April 53%; May 51%; June 57%, and July 46%. The total increase for the whole seamless group shows an increase of only 13%.

•

**Europe's Hosiery Progress**—Europe is making rapid progress in hosiery manufacture and many firms, the English in particular, now turn out sheer hosiery which is up to the American standard, declared J. A. Goodman, former board chairman, Real Silk Hosiery Mills, Indianapolis, who recently returned from an extended trip abroad. He said he was especially impressed with the increased use of the single-unit machine over there.

•

**Union Has Plan for South**—Seamless hosiery mills of Chattanooga, Tenn. and High Point, N. C., will shortly be asked by the American Federation of Hosiery Workers to adopt an agreement similar to that accepted by competing mills in Berks County, Pa., it was stated by Alfred Hoffman, union leader. The pact would cover hours, wages and provisions for collective bargaining.

•

**Objects to Small-Type "Rayon"**—Use of the word "rayon" in smaller type than accompanying words when identifying hosiery which has silk and rayon content, is being vigorously opposed by the Federal Trade Commission. The Commission last month ordered several hosiery firms to print "rayon" the same size as "silk" in identifying hosiery fiber content.

•

**Outerwear Mills, Note** — The National Knitted Outerwear Association announced last month that its members could substantially reduce their present premium expense under the Workmen's Compensation Law, through a new arrangement. This arrangement provides that members can participate in the N. Y. State Insurance Fund, Group No. 82, sponsored by the Chamber of Commerce of the Apparel Industry.

•

**To Revise Hosiery Tests** — Harry Levine, president of the American Association of Textile Technologists has appointed a committee to work with the standards committee of the National Association of Hosiery Manufacturers in revising a compilation of hosiery testing methods. The new committee will be headed by E. N. Ditton, of Gotham Silk Hosiery Co.

•

**Dr. Evans' Scope**—Dr. John C. Evans, of Albright College, who was named last month as Impartial Chairman to arbitrate labor problems in the Reading, Pa., hosiery district on behalf of the Keystone Hosiery Manufacturers, will not touch on the question of wage rates, it is reported. It is understood that wages and related issues will be dealt with by arbitration.

•

**Praise Cheney's Brief**—Both underwear manufacturers and other knit goods men were enthusiastic this month in praising the brief presented by Roy A. Cheney, managing director, Underwear Institute, at the Federal Trade Commission hearing on identification of rayon content merchandise in Washington recently. The brief was commended for its clarity and soundness.

•

**Drop Official Swimsuit Opening**—Swimsuit mills in New York showed their lines on various days during the last few weeks following a decision of the National Knitted Outerwear Association to leave the opening date to the judgment of individual selling offices.

•

**Hosiery Sales Data**—Total shipments of hosiery in September, 1937, were 11,418,423 doz. pr., which was 6.5% above the figure of the month preceding and 5.8% below September, 1936, according to monthly figures of the National Association of Hosiery Manufacturers. Comparing the two years for September, the outstanding points were that in 1937 children's and infants' sales dropped 30.3%, cotton bundle goods dropped 19.0%. Woolen goods, ribbed goods and women's full-fashioned showed moderate gains.

•

**Sweater Imports Rise**—Manufacturers of low-end cotton sweaters expressed growing concern this month over the rapidly mounting volume of Japanese cotton sweaters now being sold to American distributors. Variety chain stores are importing substantial quantities of the Japanese products in preference to American-made goods, it is reported.

•

**New Swim Suit Fabric**—A new swimsuit fabric, knit of wool combined with elastic yarn to give a two-way stretch, is being introduced in the 1938 swimsuit line of Jantzen Knitting Mills. Another Jantzen novelty, an elastic yarn combined with silk, in plain and prints, is expected to compete with woven beach wear.

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## *Knit Goods*

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# Processing Digest

OF PARTICULAR interest to men connected with the processing branches of the industry are two events on the textile calendar for next month. These are the annual meetings of, first, the A.A.T.C.C., in Philadelphia, Dec. 3 and 4, and, second, the Textile Division of A.S.M.E., in New York, Dec. 8. The wide variety of technical papers to be presented at the chemists' convention and the symposium on printing which will be the feature this year of the engineers' meeting offer an excellent opportunity for one to post himself on the latest developments in textile processing.

Many will find it advantageous to be present at both gatherings. Every one who realizes the value of keeping abreast of the technical progress in his field should make it a point to attend at least one of these meetings.—*Editor.*

**Lacquer Printing** was discussed by Conrad Frye, of Maas & Waldstein Co., at a meeting of the New York Section, A.A.T.T.C., held Oct. 22, at the Swiss Chalet, Rochelle Park, N. J. Mr. Frye described briefly the various types of lacquers now in use and outlined the precautions to be taken in their application. In roller printing, according to Mr. Frye, selection of the lacquer and proper pressure are two of the most important considerations. Running of lacquer printed fabrics over a button breaker frequently is of value in obtaining a better hand. George W. Hinkle of Republic Steel Corp., presented the motion picture, "Enduro—the Perfected Stainless Steel," and spoke briefly on some of the latest developments in the application of stainless steel to textile equipment. Mr. Hinkle called particular attention to an experimental kier available to textile mills which wish to investigate this type of equipment in chlorine and peroxide bleaching.

•

**Receives Medal**—At a joint meeting of the American Section of the Society of Chemical Industry and the American Chemical Society held Nov. 5, in New York, E. J. Crane, editor of *Chemical Abstracts,* was presented with the Chemical Industry Medal awarded annually for valuable application of chemical research in industry. The medal was given this year to Mr. Crane for his work in abstracting technical and scientific writings in the chemical industry and allied fields. In accepting the medal, Mr. Crane said: "It is well for scientists and technical men to learn to report their findings with a degree of skill and exactitude equal to that employed in the laboratory and to learn effectively to use the accumulated printed words and sentences which make up the record of science and industry."

•

**Printers' Association**—John R. Illingworth has resigned from his position as controller of Waldrich Co. to become full-time president of the Rayon and Silk Printers' Association, which was formed in August to put into effect certain of the measures recommended by General Johnson for improvement of conditions in the rayon and silk printing industry. Headquarters of the association are 160 Market St., Paterson, N. J. Other officers include: G. Mortimer Reader, vice-president; Aleck Smith, secretary; Louis A. Simon, treasurer.

•

**Finishing Activity**—Cotton finishing activity still continues at a disappointingly low rate. Opposition to the higher silk-print price scale announced late in September has developed, the underwear fabrics trade being especially critical. The brightest spot is screen printing, where the beginning of the volume-order season finds a number of printers adding a second shift.

•

**Printing Symposium**—A feature of the annual meeting of the Textile Division, A.S.M.E. to be held Dec. 8, in New York, is a symposium on printing at the headquarters of the Society, 29 West 39th St., beginning at 9:30 a.m. Subjects and speakers include: "Mechanical Equipment in Printing," by Wallace Taylor; "Wanted—More Engineering in Textile Printing," by J. F. Holloran; "Dyes and Gums Used in Textile Printing," by I. F. Chambers; and "Merchandising Requirements," by Stephen J. Kennedy.

•

**Flame-Proof Canvas** was discussed by E. Blundell, of William L. Barrell Co., Inc., before a recent meeting of the National Association of Tent & Awning Manufacturers, in Chicago. Mr. Blundell gave a brief historical review of attempts at flame-proofing; outlined the requisite qualities of the ideal fire-resistant fabric for awnings, canopies, tents, tarpaulins, and similar uses; and discussed recent improvements which have led to the development of flame-proofing treatments that result in fabrics meeting these requirements.

•

**"Chemical Research Creates Industries,"** a slogan submitted by Norman E. Diehl, assistant division purchasing agent, E. I. du Pont de Nemours & Co., won the contest sponsored by the National Exposition of Chemical Industries. Mr. Diehl will receive a $250 award at the opening of the National Exposition of Chemical Industries, in Grand Central Palace, New York. Plans for the Exposition, which will be held during the week of Dec. 6, are now practically completed. Many of the exhibits will feature new chemicals and laboratory and plant equipment applicable for use in the textile industry.

•

**Institutional Advertising** will comprise an important part of advertising campaign for 1938, according to John C. Turrell, of Cluett, Peabody & Co. A national magazine schedule will be supplemented by extensive advertising in trade and class publications.

•

**Wetting Agents** suitable for use in textile processing were described by Dr. B. G. Wilkes, of Mellon Institute, and Dr. J. N. Wichert, of Carbide & Carbon Chemicals Corp., at a meeting of the American Chemical Society held recently in Rochester, N. Y. The particular products discussed were the Tergitols, a series of new synthetic fatty alcohol sulphates suitable for use in such operations as kier boiling, scouring, bleaching, mercerizing, dyeing, carbonizing, and fulling.

•

**Dyes and Dyeing** was the subject of an address delivered by Dr. H. A. Lubs, associate director of the Technical Laboratory of E. I. du Pont de Nemours & Co., at a meeting of the Virginia Section of the American Chemical Society, held Oct. 8, in the Cobb Chemical Laboratory of the University of Virginia, Charlottesville, Va.

•

**Screen Printers** belonging to the Screen Printers Guild, Inc., have recently adopted a new rule to the effect that they will have screens engraved only by members of the Master Screen Engravers Guild, a newly formed organization.

•

**Study Woolen and Worsted Shrinkage**—A survey to determine the facts regarding pre-shrinkage of woolens and worsteds has been initiated by the National Better Business Bureau. Information is being gathered from garment manufacturers, distributor groups, dry cleaners and civic bodies, and will be used to outline some possible solution of the problem.

## *Processing*

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# Mill News

## *Cotton Mill News*

**Anniston (Ala.) Mfg. Co.** has installed new Saco-Lowell spinning and roving equipment and new Draper X-Model looms.

**Rice-Stix Co.**, Blytheville, Ark., will soon open its new plant, representing an investment of $80,000.

**Aragon (Ga.) Mills, Inc.**, have awarded general contract to C. M. Guest & Son, Anderson, S. C., for three one-story mill additions, 122x126 ft., 70x100 ft., and 38x45 ft., respectively. First noted will be used for expansion in weaving division, and other structures for increase in different mill departments. Cost over $125,000, with equipment. Robert & Co., Bona Allen Building, Atlanta, Ga., are architects.

**R. H. R. Co.**, Atlanta, Ga., recently organized by Lawrence W. Roberts, Jr., Atlanta, E. J. Heitzberg, Nashville, Tenn., and Paul A. Redmond, Birmingham, Ala., has purchased **Otis Co.**, Ware, Mass., for $50,000. Old machinery will be junked, buildings renovated, and several smaller new industries established. Hydro and steam power totaling 3,000 hp. are available on the properties. Otis Co. will continue its denim factory at Greenville, N. H.

**Bibb Mfg. Co.**, Columbus, Ga., has purchased the local mill property of the Meritas Mills of the Standard Textile Products Co., and will take title at once.

**John R. Lyman Co.**, manufacturer of cotton wiping cloths, has leased a factory from Industrial Building Corp., Chicopee, Mass. Processing will be consolidated with that of the Godfrey Cotton Products Co., New York, which has acquired control of the business.

**Kendall Co.**, Boston, Mass,. has work near completion on new one and two-story addition to bleachery at Walpole, Mass., 82x128 ft., and 48x80 ft., and will proceed with equipment installation at early date.

**American Printing Co.**, Fall River, Mass., plant has been sold to Firestone Tire & Rubber Co., Akron, Ohio, for conversion into a factory for latex products. The plant includes all five cotton mills, 20 auxiliary buildings and 4,000 ft. of water front. Approximately $200,000 will be expended for modernization. Title passed Nov. 1.

**River Mills, Inc.**, Fall River, Mass., has moved to 206 Globe Mills Ave.

**Taber Mill**, New Bedford, Mass., has been assigned by Federal Court to Referee Charles P. Ryan, at Fall River, Mass., under 77B proceedings, for liquidation.

**Proximity Mfg. Co.**, Greensboro, N. C., has begun construction of a new filtration plant at the Buffalo Dam, for pure water supply for its local White Oak Mills and other plants.

**Randolph Mills, Inc.**, Franklinville, N. C., is constructing an addition to the inspection department of No. 2 mill which will practically double the floor space.

**Hannah Pickett Mills**, Rockingham, N. C., announce the completion of a building program including the erection of seven new warehouses, three at Mill No. 1 and four at Mill No. 2. Some 40 new houses were erected at Mill No. 1 and 25 houses at Mill No. 2 for the operatives.

**Lola Mills, Inc.**, Stanley, N. C., announces the completion of a modernization program, which included the installation of a Saco-Lowell slasher, Foster No. 75 winders, Universal multiple winders, three yarn-drying units equipped with Grinnell unit heaters, and the Gaston County package carriers.

**Virginia Mills, Inc.**, Swepsonville, N. C., has erected an addition and installed improved toilet facilities throughout the mill.

**Leward Cotton Mills, Inc.**, Worthville, N. C., announces the completion of a modernization program over a period of one and one-half years. It included the installation of modern long-draft spinning, replacing obsolete filling spinning. All old looms have been junked and replaced with automatic looms. Old spooling and warping have been replaced with Barber-Colman automatic spooling and high-speed warping. Automatic cleaning systems have been installed in the spinning departments.

**B. B. & R. Knight Corp.**, Providence, R. I., has completed plans for a reorganization of company, to include the formation of a new corporation under name of Fruit of the Looms, Inc., to take over and succeed to present company. Stockholders meet Nov. 16 to consider the plan.

**Orr Cotton Mills**, Anderson, S. C., are installing 22,000 spindles of new Whitin long-draft spinning equipped with G.E. individual motors and Rockwood drives.

**Bowling Green (S. C.) Spinning Mills** have completed a one-story mill addition, 30x67 ft., and will use for expansion in carding division, with installation of 10 new cards and auxiliary equipment.

**Hermitage Cotton Mills**, Camden, S. C., is pushing forward the installation of new machinery, which will include 100 X-Model looms to replace discarded looms. The company has completed construction of a new mixing room, a new supply department, and new cloth storage department. New floors were laid in some of the mill rooms.

**Greenwood (S. C.) Cotton Mill** has approved plans for a three-story addition, 42x92 ft., and will carry out erection by day labor. New unit will be used for office and other operating service; cost over $45,000; J. C. Hempile, Columbia, S. C., architect.

**Mathews Cotton Mill**, Greenwood, S. C., has work nearing completion on a group of 100 new dwellings for operatives at the mill. A one-story addition to mill is also under way, which is scheduled for completion early in 1938.

**Inman (S. C.) Mills** announce the completion of a modernization program which included the installation of 10,000 Saco-Lowell long-draft spindles equipped with SKF bearings. The frames have individual G.E. motors and V-belt drives.

**Springs Cotton Mills**, Lancaster, S. C., announce plans for a new addition to the weave room at Lancaster. This addition will be two stories, of steel and brick construction, about 300x150 ft., and will house additional 40-inch looms. The necessary preparatory machinery will be housed in a new top-story to be built later on the No. 4 mill. When this addition is completed the weave room at Lancaster will contain over 7,000 looms.

**Pendleton (S. C.) Mfg. Co.** has installed water and sanitation in all of the houses of the village.

**Whitney (S. C.) Mfg. Co.** is completing the installation of a vacuum lint and dust collector system, for which contract recently was let to the Textile Shop, Inc., Spartanburg, S. C. Company also installing additional spindles and accessory equipment.

**Kingsville (Tex.) Cotton Mill**, idle for two years, has been leased by Houston (Tex.) Cotton Mills Co., as part of a general expansion program.

**Houston (Tex.) Cotton Mills Co.**, has arranged for a lease of the mill of the San Antonia Cotton Mills, Kingsville, Tex., idle for more than 2 years, and will modernize and operate for a branch mill.

**Narrow Fabric Co., Inc.**, Reading, Pa., has acquired the idle plant of L. O. Hudson Hosiery Mills, Ltd., St. Catharines, Ont., and will establish a Canadian branch plant in the premises. A new firm, known as **Narrow Fabric Co., Ltd., of Canada**, has been organized with a capital of $100,000.

**Dominion Textile Co., Ltd.**, with headquarters at Victoria Sq., Montreal, Que., and mills in a number of Quebec cities, is proceeding with its $500,000 expansion program.

## Wool Mill News

**Level Mfg. Corp.**, South Norwalk, Conn., has been incorporated with capital of $50,000, to operate a local woolen mill. New company is headed by Joseph Kanner, South Norwalk; and Charles Flateman, 2047 Seventy-fifth St., Brooklyn, N. Y.

**Stanton (Del.) Worsted Co.**, recently organized by Louis H. Weischedel, Media, Pa., and associates, has taken over former local building of the Ad-Tissue Co., and will remodel and equip for new mill. Initial installation will include about 50 looms.

**Goodall Worsted Co.**, Sanford, Me., reports net profit for fiscal year ended July 31 of $615,006, compared with $841,657 for year previous.

**Thayer Woolen Co.**, North Oxford, Me., has sold an idle mill building to the North Oxford Garnetting Co., but the Thayer company's operations are being carried on as usual in its principal buildings. This is a corrected form of an item published last month from which the false inference might have been drawn that Thayer itself had shut down.

**Jackson County Woolen Mills**, Pascagoula, Miss., recently organized, have work under way on first unit of new local mill, one-story, 120x505 ft., and have awarded general contract to B. L. Knost Construction Co., Pass Christian, Miss., for erection of a second one-story unit on adjoining site, 120x282 ft., with boiler house.

**Hudson (Mass.) Worsted Co.**, has awarded general contract to Ernest L. Aldrich Co., Hudson, for one-story boiler plant at mill, 21x41 ft. Cost over $25,000, with equipment. Earl V. Aldrich, Hudson, is architect.

**Collins & Aikman Corp.**, New York, report net profit for six months to Aug. 28 of $2,084,959 compared with $2,418,223 for same period a year before.

**Durable Worsted Mills** have been established in Philadelphia, Pa., with headquarters at 6146 North 20th St., under the management of George L. MacElroy, 136 East Fishers Ave.

**Philippi (W. Va.) Woolen Mills, Inc.**, have tentative plans under consideration for new one-story addition for increased capacity, in connection with proposed blanket division.

**William Collie**, woolen manufacturer, Ways Mills, Que., formerly Telford & Chapman, has sold his plant to George Sheard, manager, St. George Woolen Mills, St. George de Beauce, Que. Mr. Sheard is planning to produce overcoatings at Ways Mills.

## Rayon & Silk Mill News

**Best Mfg. Co.**, Gainesville, Ga., has begun the construction of a $150,000 silk yarn manufacturing unit. The new two-story building is scheduled to be ready for the installation of machinery by Jan. 1. J. E. Sirrine & Co. are the engineers.

**Tubize Chatillon Corp.**, Rome, Ga., is constructing an addition, with Grinnell Construction Co. in charge of the work. Stockholders voted issuance of $5,000,000 in debentures at any time before Jan. 2, 1939.

**American Viscose Corp.**, New York, N. Y., has begun production on a reduced basis in recently completed section of new staple fiber mill at Nitro, W. Va., in course of erection a number of months. Machinery will be installed in other mill units at once. When plant is placed on a full production basis early in 1938, production is estimated at 20,000,000 lbs. per annum; staple fiber will be manufactured in lengths suitable for cotton, woolen and worsted spinning. New mill represents an investment in excess of $1,500,000. William Vivian will be manager.

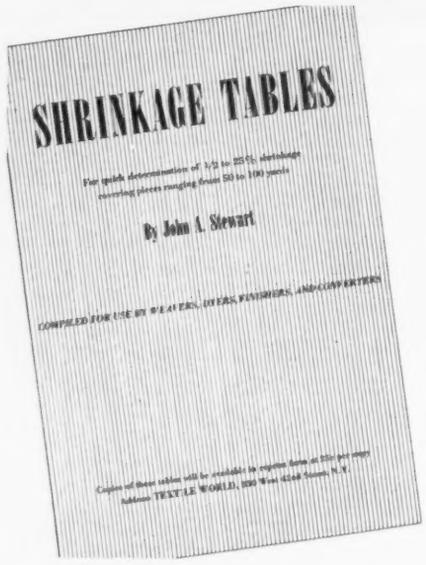
**Duplan Silk Corp.**, New York, N. Y., has steel frame superstructure under way on new mill at Grottoes, Va., where company recently secured a tract of about 80 acres of land. The main unit will be one-story, sawtooth roof type, 237x481 ft., and will be equipped to provide for employment of about 350 persons. A total of 30,000 sq. ft. of glass brick will be used in its construction; a complete air-conditioning system will be installed. Structure is scheduled for completion next February and will represent an investment of close to $500,000, with machinery.

**North American Rayon Corp.**, New York, reports net profit of $2,509,318 for 36 weeks ended Sept. 5 against $1,258,732 for similar period year before.

**Forness Silk Co.**, Olean, N. Y., recently organized by Mayor Fred W. Forness and associates, has acquired the four-story and basement brick and steel textile plant in North First street, that city, formerly occupied by Jno. Dunlop's Sons, Inc. The plant, 100x311 ft., will be completely rehabilitated and air-conditioned. Production of silk products will be started early in 1938.

**Century Ribbon Mills**, New York, report net profit for first nine months of $111,766, compared with $109,251 for similar period in previous year.

**Industrial Rayon Corp.**, Cleveland, Ohio, reports net profit for first nine




# FINGER-TIP CONTROL

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City ..... State .....

**To Mills requiring many copies the price is $2.50 per dozen.**


# Mill News

months of 1937 of $197,915, compared with $923,557 for the similar period of previous year.

**Leon-Ferenback Silk Co., Inc.,** Parsons, Pa., has begun superstructure for new one-story addition, 27x42 ft., for which general contract recently was let to O. Behrens Co., Wilkes-Barre, Pa. Cost over $35,000, with equipment. Innes & Levy, Wilkes-Barre, are architects.

**Williamsport (Pa.) Textile Corp.,** is completing an addition to be ready for occupancy early in November.

**Providence, R. I.**—L. E. Danforth, 76 Dorrance St., engineer, has preliminary plans under way for a two-story and basement textile mill, 50x110 ft., on site in Massachusetts, for a company whose name is temporarily withheld, and which is said to be arranging for production of rayon products at the plant.

**Kingsboro Silk Mill,** Daisy, Tenn., is installing a dyeing department costing about $35,000.

**E. I. duPont de Nemours & Co.,** Waynesboro, Va., has begun work on an addition to the boiler house, which is scheduled to be completed by Jan. 15.

**Jefferson Mills, Inc.,** Pulaski, Va., recently chartered with capital of $300,000 by Howard C. Gilmer, Jr., and associates, has awarded general contract to C. M. Guest & Son, Anderson, S. C., for one-story building on local site, to be equipped as a silk throwing mill.

## Knitting Mill News

**Modern Knitting Mills,** 151 South Garey street, Pomona, Calif., were sold early in September by Anna Kauman to Jennie Alan, both of Pomona.

**Walton Hosiery Mill,** Defuniak Springs, Fla., have installed six additional knitting machines, costing about $30,000.

**Valpariso, Fla.**—Alfred R. Smith, 19 Maplewood Ave., Philadelphia, Pa., real estate, acting for a manufacturer of hosiery, name temporarily withheld, has arranged with James E. Piew & Associates, Valpariso, for erection of a one-story industrial building on U. S. Highway No. 10.

**Albany (Ga.) Mfg. Co.,** representing an investment of $450,000, has completed its building program. It will start with about 250 workers on full-fashioned hosiery. Eventually it will double investment and personnel.

**Owen Osborne, Inc.,** Gainesville, Ga., has begun steel frame superstructure for new one and two-story addition to mill, 45x90 ft., for which general contract recently was let to C. M. Guest & Son, Anderson, S. C. It will cost about $40,000, including equipment. J. E. Sirrine & Co., Greenville, are engineers.

**Goodman Bros.,** Indianapolis, is erecting a hosiery mill at Grenada, Miss., at cost of $24,932.

**Arthur Albert,** New York, N. Y., was the successful bidder at the sale of Bethlehem Knitting Mills, Inc., Chicopee, Mass., Oct. 22. The price was $20,300. The property must be removed.

**Propper-McCallum Hosiery Co.,** Northampton, Mass., has been turned over to a five-man voting trust for five years, as part of reorganization plan. John H. Finn is chairman.

**Corinth (Miss.) Hosiery Mill, Inc.,** has asked bids on general contract for one-story addition to mill. It will be used for the installation of 28 additional knitting machines.

**Meridian (Miss.) Hosiery Mills** will get well into operations this fall. The building and equipment cost about $750,000. It will operate 68 ff. machines.

**Newton Miss.**—Town council has secured permission from State Industrial Commission, Jackson, Miss., to arrange a bond issue of $25,000, proceds to be used for the erection of a building to be occupied as a hosiery mill, by a company whose name is temporarily withheld.

**Viking Hosiery Mills, Inc.,** Hoboken, N. J., have been chartered with capital of 100 shares of stock, no par value, to operate a local mill. New company is represented by Harry Schwartz, 51 Newark Ave., Hoboken, attorney.

**Holland Hosiery Co.,** West New York, N. J., has been chartered with capital of $100,000, to operate a local mill. New company is represented by Irving Mintz, 588 Bline Ave., West New York, attorney.

**William Levin Knitting Mills,** 113 Fourth Ave., New York, N. Y., have leased a floor in building at 826 Broadway, totaling about 10,000 sq. ft. of floor space, and will occupy for expansion in mill.

**Yund, Kennedy & Yund, Inc.,** Olean, N. Y., have begun negotiations for a loan of $150,000 from RFC, in connection with reorganization plans of company, now being consummated.

**Standard Hosiery Mills,** Alamance, N. C., has installed new machines in its seamless department.

**Asheboro (N. C.) Hosiery Mills, Inc.,** have awarded general contract to S. E. Trogden, Asheboro, for one-story addition, 117x118 ft., for which superstructure will begin at once. Cost over $85,000, with equipment. H. V. Biberstein, Charlotte, N. C., is architect. It is said that the plant will produce full-fashioned hosiery.

**Knit Products Corp.,** Belmont, N. C., has awarded general contract to C. M. Guest & Son, Anderson, S. C., for two-story mill addition, totaling about 21,000 sq. ft. of floor space.

**Foster Knitting Co.,** Burlington, N. C., has let general contract to Bryan & Bayliff, Burlington, for one-story addition. Cost close to $25,000, with equipment. Additional hosiery machines will be installed.

**May Hosiery Mills,** Burlington, N. C., has begun the construction of an addition to the finishing department, 24x160 ft. C. M. Guest & Sons, Greensboro, N. C., have the contract.

**McEwen Knitting Co.,** Burlington, N. C., has constructed an addition and installed several new full-fashioned machines.

**Sellers Hosiery Mills,** Burlington, N. C., have completed construction of a one-story addition, 96x108 ft., on which superstructure has been under way for a number of weeks. Installation includes 12 new full-fashioned hosiery machines and aux-

# Mill News

iliary equipment. Additions will be made to working force. Expansion is said to represent an investment of about $150,000.

**Nebel Knitting Co., Inc.,** Charlotte, N. C., has acquired property at Willow Branch Ave. and Plum St., Jacksonville, Fla., as site for new branch mill.

**L. & B. Hosiery Mill,** Claremont, N. C., recently organized, is beginning operation of a new local mill, occupying a leased building, which has been remodeled and improved. A total of 48 new knitting machines and auxiliary equipment have been installed. New company is headed by Claud Little, owner and operator of the Claremont Hosiery Mills, and J. Edward Broady, Spencer, N. C.

**Borden & Beck Hosiery Mill,** Cranberry, N. C., began operations in its new unit Oct. 1, with 50 hosiery machines and auxiliary equipment.

**Harriss & Covington Hosiery Mills, Inc.,** High Point, N. C., have let general contract to J. O'Conner & Son, High Point, for one-story addition to mill. Cost over $35,000 with equipment.

**Newton (N. C.) Knitting Mills,** a newly organized concern, began operations the first of November, under the ownership and management of Horace J. Isenhour. Thirty knitting machines, eight ribbers and seven loopers, constitute the initial machinery set-up.

**American Knitting Co.,** Honesdale, Pa., has filed a petition in United States District Court, Scranton, to reorganize under section 77-B of the amended bankruptcy act. The petition lists liabilities of $103,115.30 and assets of $83,226.52.

**Lee I. Robinson Hosiery Mills, Inc.,** Philadelphia, Pa., have acquired machinery and equipment in local hosiery mill of Marshall Field & Co., closed a number of weeks ago, and will use for expansion in plant.

**A. R. Smith** of Philadelphia, Pa., owner, has begun work on a factory building at Valpariso, Fla., for a hosiery plant. Eight knitting machines will be installed at the beginning of operations.

**Triangle Knitting Mills,** Philadelphia, Pa., have filed notice of organization to operate a plant at Oxford and Hancock Sts. Samuel and Isadore Burg, 1100 North State St., head the new company.

**Oakbrook Hosiery Mills,** Reading, Pa. will construct a one-story office building at Lancaster Avenue and Grace Street.

**Lycoming Hosiery Mills,** Williamsport, Pa., plans to double its present floor space in the United States Rubber Co., building, that city and will install $5,000 worth of new machinery.

**Jac Feinberg Hosiery Mill, Inc.,** Rock Hill, S. C., has plans nearing completion for new one-story addition to mill. Cost estimated close to $25,000 with equipment.

**Baker-Moise Hosiery Mills** (Vanette Hosiery Mills), Dallas, Tex., is spending $140,000 on its expansion instead of $40,000 as noted in our last issue. The latter sum covers only the plant enlargement, while 10 new full-fashioned machines have been contracted for at a cost of $100,000.

**Paramount Knitting Mills, Ltd.,** with capitalization of $250,000 have taken out incorporation papers at Victoria, B. C., and will engage in business as manufacturers of knitted and woven clothing. Registered offices are located at 24 Commerce Building, 640 West Hastings street, Vancouver, B. C.

## Processing Plant News

**Housatonic Dyeing & Printing Co., Inc.,** Derby, Conn., has elected the following officers: president, Richard Reynolds, Clifton, N. J.; secretary-treasurer, Gustave Hordes, New Haven, Conn.

**Griswold Print Works, Inc.,** Jewett City, Conn., has been chartered with capital of $50,000, to operate a local dye and print works. Frank G. Ahern and Mary F. Ahern, Norwich, Conn., are president and vice-president, respectively; James A. Blair, Jewett City, is secretary.

**Bondsville (Mass.) Bleachery & Dye Works** recently installed equipment for continuous sulphur dyeing.

**Arnold Print Works,** North Adams, Mass., reports a net profit of $652,134 for the year ended June 30, 1937. The company has recently been reorganized and succeeded by Arnold Print Works Corp.

**Cliftona Print & Dye Works,** Clifton, N. J., in bankruptcy, will be liquidated according to Federal Court order.

**Dundee Finishing Co.,** Passaic, N. J., will soon begin operations at 35 Eighth St. Company is headed by Walter Harand, for eight years with Sunbury (Pa.) Converting Co., and Dr. Joseph LaTona, a physician of Passaic.

**Hartgens Globe Skein Dyeing Co.,** Paterson, N. J., was placed in hands of A. H. Radcliffe, as custodial receiver by the court.

**C. Tratzevsky** 549 West 132nd St., New York, N. Y., has leased a floor in building at 507-59 West 132nd St., totaling about 10,000 sq. ft. floor space for a new textile print works.

**Southern Mercerizing Co.,** Tryon, N. C., has constructed an addition in which five additional Whitin quillers and a number of 102-Model winders will be installed.

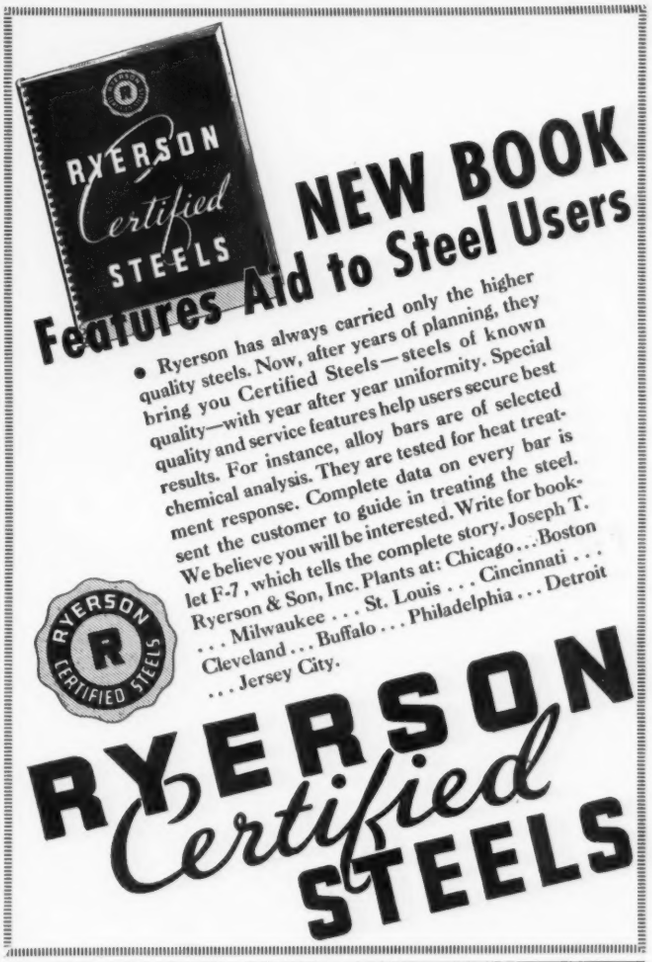
**Sunbury (Pa.) Converting Works, Inc.,** will abandon operations at its Belvidere N. J., plant. The Sunbury plant will continue to specialize in printing and do only a selected line of plain goods dyeing.

**Rock Hill (S. C.) Printing & Finishing Co.** is constructing an addition to the office and a new warehouse.

**Imperial Printing & Finishing Co.,** Cranston, R. I., has been purchased by Gilbert Kahn, of the Consolidated Products Co. About 450 are employed and the plant has been in operation for 26 years. It is hoped to resell the plant to an owner who will keep it in operation.

**United States Finishing Co.,** Providence, R. I., has transferred all printing operations to branch mills at Norwich and Sterling, Conn.

**Dixie Finishing Co., Inc.,** Emporia Va (F. A. Tagliabue of North Bergen, N. J., manager), is equipping a former cotton mill property for dyeing and finishing textile goods of all kinds.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**1. Dryers.** Proctor & Schwartz, Inc. Illustrated folder describes construction, applications, and advantages of Multipass Airlay Dryer for drying piece goods without tension; also lists 29 prominent textile users of this equipment.

**2. Bobbin Winder.** Davis & Furber Machine Co. Booklet gives data on features of bobbin winder, including patent oscillating take-up, cam builder motion, etc., with full instructions on operation and adjustment of builder motion and bunch builder.

**3. Microscopes.** Bausch & Lomb Optical Co. Catalog D-15 describes line of binocular microscopes, Greenough type, including following models: improved KW wide-field binocular microscope with inclined eyepieces, K wide-field junior and KX wide-field; also data and descriptions of wide-field lamps, reflector lamps, and other equipment.

**4. Bearings.** Moraine Products Division, General Motors Corp. 40-page handbook, illustrated in color, covers Moraine line of Durex bearings. First part of volume deals with structure, properties, oil flow, load carrying, and typical installations, with specific textile uses of Durex top-roll arbor discussed on pages 19-20; remainder of book relates to various Durex bearings, thrust washers, irregular shapes.

**5. Testing.** Atlas Electric Devices Co. Folder describes construction, functions, and advantages of Launder-ometer, electrically operated laboratory washing machine for making reproducible tests of textiles, soaps, detergents, and other materials and chemicals requiring mechanical action with controlled agitation; also information on company's other testing equipment.

**6. Valves.** Hancock Valve Division, Manning, Maxwell & Moore, Inc. Bulletin describes company's Flo-control valves, which have been redesigned and now are announced at lowered prices; illustrations show typical applications in textile and other plants.

**7. Pyrometers.** Wheelco Instruments Co. Bulletin describes Wheelco indicating pyrometers ranging from small portable type to large 8-in.-scale wall-mounted type; with information on newly developed line of combination pyrometers and switches.

**8. Air Conditioning.** Parks-Cramer Co. September issue of *Parks' Parables* has article discussing problems of air conditioning in textile mills; illustrations show scenes in Pepperell Mfg. Co. plants.

**9. Warp Sizing.** Chas. B. Johnson. W. L. Bentley, director, Textile Division, Thos. W. Dunn Co., continues his article on "Technology of Warp Slashing" in September *Rayon Warp Sizing Specialist*, which issue also discusses acetate yarn consumption in the South, and other rayon subjects.

**10. Hosiery Seamer.** Union Special Machine Co. "Two-Thread and Three-Thread Seams for Hosiery" are discussed in October issue of *The Needle's Eye*; article cites advantages of company's Forty-One-Three hosiery seamer, and includes illustrations of hosiery made by Phoenix Hosiery Mills; another article in the same issue considers specific lubrication requirements for various types of sewing machines.

**11. Knitting.** Wildman Mfg. Co. Illustrated folder describes construction, operation, and advantages of company's single-head, single-unit full-fashioned machine; includes information on automatic rack-back attachment.

**12. Turbine Pumps.** Fairbanks, Morse & Co. Article in October issue of *F-M News*, company's house organ, tells how pumping costs in a knitting mill were reduced 75% by use of F-M turbine pump which, it is stated, delivers twice as much water with half the power required by the old air-lift system.

**13. Electrical Insulation.** Continental-Diamond Fibre Co. Catalog describes company's line of Micabond,

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bonded mica material for electrical insulation, with data on its manufacture, uses, dimensions, etc.; also covers tapes, tubing, segments, and other Micabond products.

**14. Steam Purifiers.** Cochrane Corp. Publication 2725 tells how steam purifier can eliminate damage caused by presence of moisture and solid impurities in steam; with information on construction details and styles of Cochrane line of purifiers for a wide range of industrial needs.

**15. Processing Materials.** National Aniline & Chemical Co. Use of National Nacconols in textile processing, with particular reference to dye bleeding and related problems, is discussed in September issue of company's house organ, *Dyestuffs*.

**16. Speed Control.** Reeves Pulley Co. Illustrated folder describes construction and operating principle of company's Motodrive, telling how this equipment may be applied to various speed-control needs.

**17. Belting.** J. E. Rhoads & Sons. Color-illustrated folder cites uses and advantages of Tannate leather belting, with particular reference to such features as reduced operating cost, long service life, and high-power-transmitting capacity, assuring maximum production.

**18. Dyeing.** Ciba Co., Inc. September *Ciba Review* considers mediaeval dyeing from many aspects, including the activities of dyers' guilds, sociological basis of mediaeval craftsmanship, etc.

**19. Textile Mills.** Edwin Farnham Greene, and McCord, Inc. Three folders describe Paterson, Hawthorne, and Lodi, N. J., plants of United Piece Dye Works which are for sale as a whole or in divisions.

**20. Travelers. Victor Ring Traveler Co.** October *The Traveler* discusses "Common Causes of (Sloughing) Sluffing Off" and offers suggestions for solution of this problem.

**21. Stainless Steel.** S. Blickman, Inc. Illustrated bulletin describes new items of equipment for the textile industry, now being manufactured in stainless steel by this company; covers dye-mixing tanks, rectangular tanks, dry cans, etc.

**22. Unit Heaters. Modine Mfg. Co.** Bulletin gives detailed data on improved Textype unit; unit has aluminum finished casing which does not show lint; characteristics and uses of this equipment, which was designed expressly for textile mills, are described.

**23. Temperature Control.** Wheelco Instruments Co. Bulletin explains uses and operating principles of Wheelco Capacitrol, with scale of ranges, illustrations of typical applications, prices and specifications.

**24. Motors.** Reliance Electric & Engineering Co. Two folders describe characteristics, functions and uses of (a) splash-proof type AA Reliance motors and (b) explosion-proof a-c motors type AA, squirrelcage 2 and 3-phase.

**25. Valves.** Hancock Valve Division, Manning, Maxwell & Moore, Inc. Illustrated bulletin describes the new Duravalve, with leak-proof integral Stillite seat, developed expressly for high-pressure high-temperature service.

**26. Stokers.** McClave-Brooks Co. Illustrated folder describes sixteen construction and operating features of the chain grate stoker for smaller boiler units, with information on wide range of applications.

**27. Cleaning.** Homestead Valve Mfg. Co. Folder describes Hypressure Jenny, chemical vapor spray cleaning machine, citing features and advantages, with information on equipment specifications, installation requirements, etc.

**28. Lighting Equipment.** Goodrich Electric Co. Catalog lists company's line of mercury-vapor lighting equipment; also light distribution curves for all fixtures, as well as charts, to help determine mounting height, spacing distance, and selection of proper lamp intensities to get desired amount of illumination.

**29. Sizing and Soaking.** E. F. Houghton & Co. October-November *Houghton Line* discusses "Error-Proofing Your Silk Soaking," "Loom Spots," "Textile Mill Owners and Research," and other textile and general topics.

**30. Motor Valves.** American Schaeffer & Budenberg Instrument Division, Manning, Maxwell & Moore, Inc. Catalog describes company's line of diaphragm motor valves, including single and double-seated types and port valves; also charts on steam and liquid capacity and valve-body working temperatures and pressures.

**31. Electrical Connectors.** Burndy Engineering Co. Folder gives conductor sizes and other information on company's line of electrical connectors, featuring the Burndy Servit.

**32. Modernization.** Commercial Investment Trust, Inc. Folder discusses five ways to buy equipment in plant modernization program: (a) C. I. T. Equipment Funding Plan; (b) Short Term Borrowing; (c) Capital Issues; (d) The Seller is the Banker; (e) Cash Purchase.

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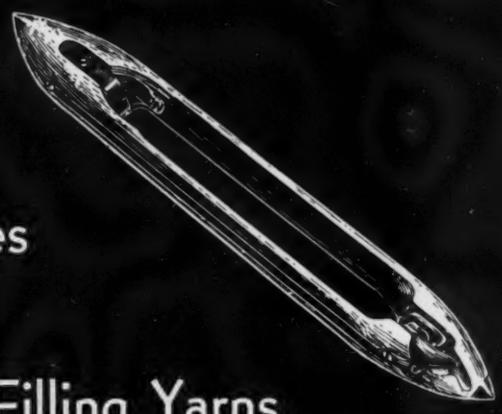

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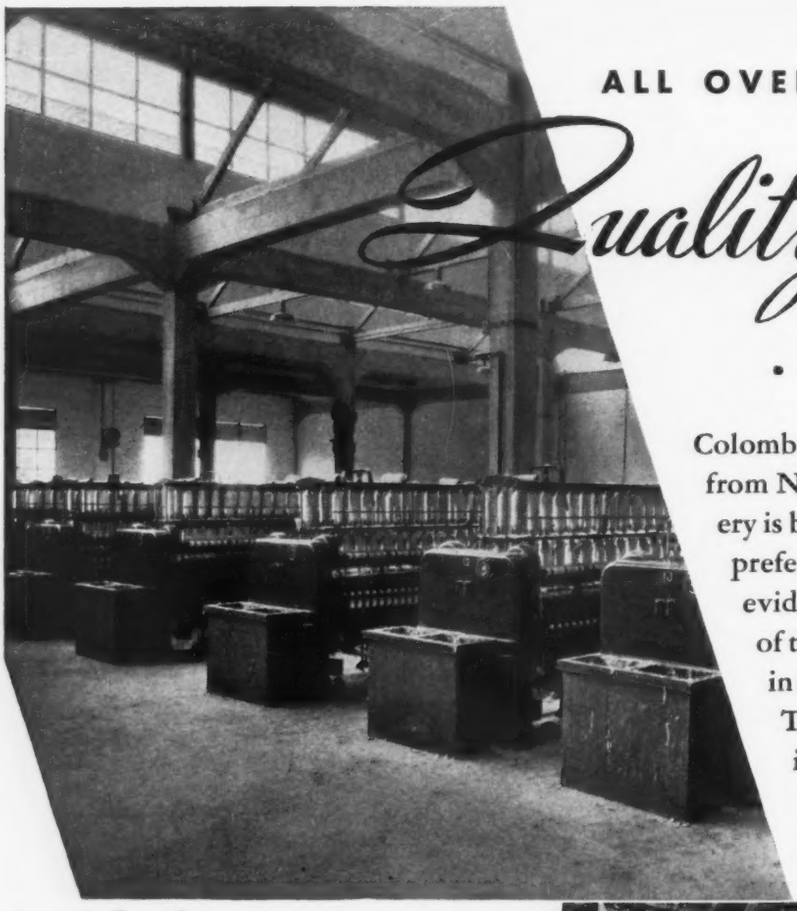

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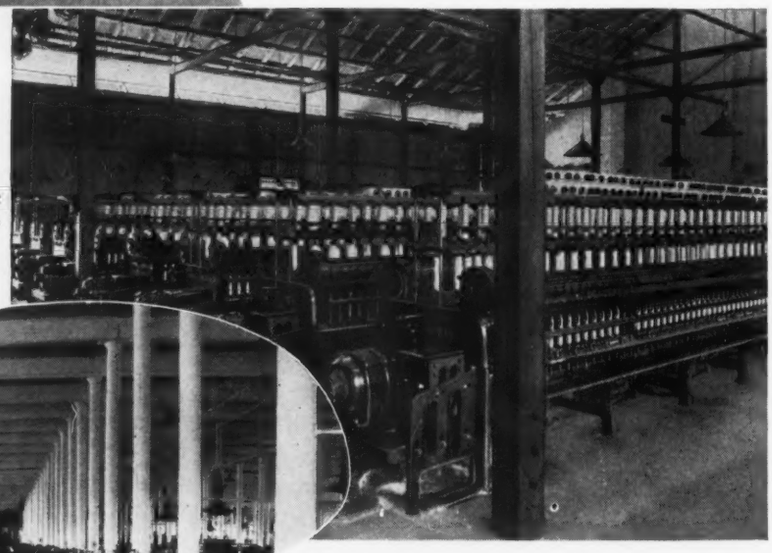
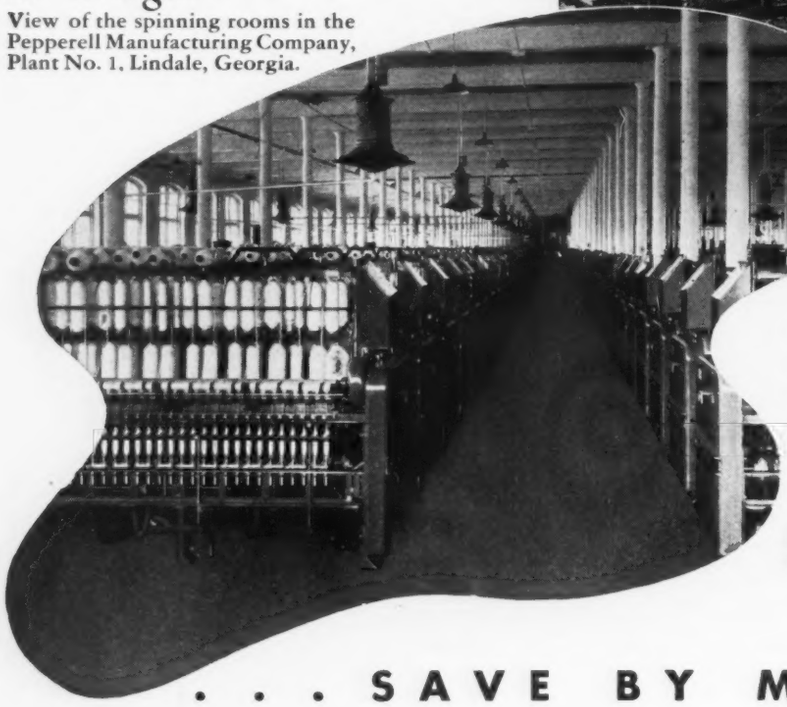


*In Colombia . . .*

Saco-Lowell Spinning Frames in the Fabrica de Tejidos Obregon, Barranquilla, Colombia, S. A.

*In Georgia . . .*

View of the spinning rooms in the Pepperell Manufacturing Company, Plant No. 1, Lindale, Georgia.



These mills know it would be suicidal to install anything but the most efficient equipment. Wisely they have turned to Saco-Lowell for the solution to their modernization problems.

**Saco-Lowell Shops**

**147 Milk St., Boston, Mass.**

## . . . SAVE BY MODERNIZING

# AN INVITATION TO MILLS USING THE BARBER-COLMAN SYSTEM OF SPOOLING AND WARPING

**Carefully compiled figures based on our invoices to Mills operating Barber-Colman Spoolers and Warpers prove that the cost of maintaining these machines is extremely low. Figures on your own machines will verify this fact.**

# DYE-HOUSE *Fumes*
## AND CONDENSATION AT HOLE PROOF HOSIERY MILLS
## *Resisted by*
# TRUSCON *Paints*

● The nationally famous Holeproof Hosiery plant has demonstrated dramatically the protection which TRUSCON paints and enamels offer for industry's most extreme and difficult conditions. Some time ago TRUSCON Fume-Saf White Enamel (Eggshell) was used throughout the entire dye-house. *After several years of most severe exposure* to fumes and condensation, the walls still remain clean, white and in perfect condition.

Other TRUSCON maintenance coatings used in the Holeproof Hosiery plant include Stonetex to dampproof and beautify all exterior concrete—TRUSCON Bar-Ox Formula "97" Rust Preventative for steel fire escapes and steel sash—Bar-Ox Inhibitive Coating for all steel work.

All TRUSCON paints, varnishes and waterproofings are the result of chemical research and are manufactured in strict accordance with laboratory procedure. That is why for nearly 30 years TRUSCON has been considered the leading technical authority on protective coatings for every variety of surface—interior or exterior. If your building maintenance problem involves any of the requirements here listed, get in touch with TRUSCON immediately. It will pay you.

THE
**TRUSCON LABORATORIES**
DETROIT, MICHIGAN

*Check* ✓

**YOUR PROBLEM HERE—**

*And Mail to Your Nearest TRUSCON Branch or to Detroit*

- ☐ Acid-Resisting Enamel
- ☐ Fume-Resisting White
- ☐ Damp-Proof Walls
- ☐ Painting a Roof
- ☐ Slip-Proofing Concrete Floors
- ☐ Paint over Rust
- ☐ Preserving Wood Floors
- ☐ Non-Yellowing Mill White
- ☐ Aluminum Paint
- ☐ Brick and Cement Coating
- ☐ Heat-Resisting Paint
- ☐ Non-Glare Paint for Windows

TRADE MARK REGISTERED

# L. F. Dommerich & Company

*Executive and General Offices*

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

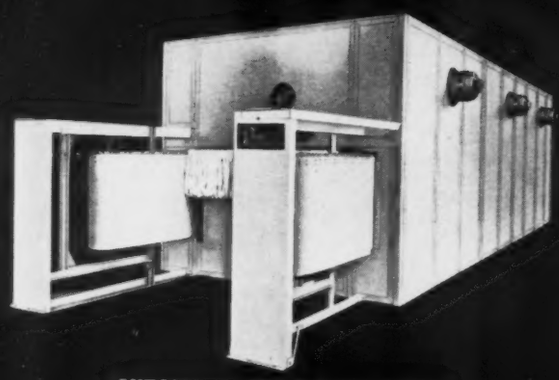
# FACTORS

For Manufacturers and Merchants

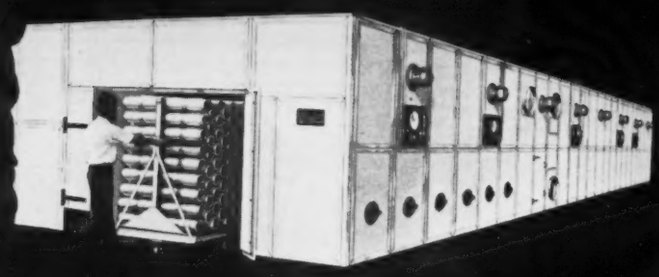
*Inquiries as to our services solicited*

•

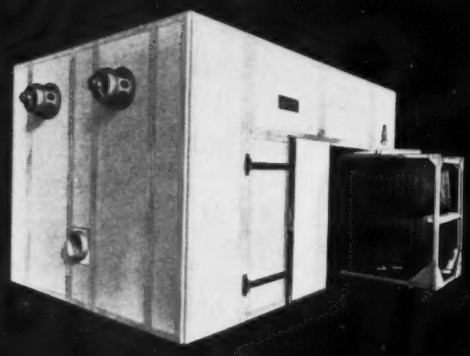
ESTABLISHED 1840



AUTOMATIC SKEIN YARN DRYER

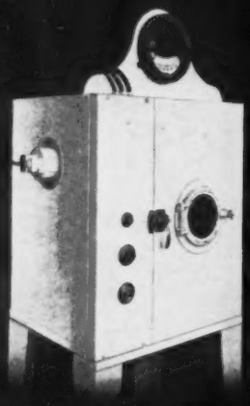


DRYER and CONDITIONER for RAYON



TRUCK DRYER for SKEIN YARN

DRYER for PACKAGE YARN



LABORATORY DRYER

# PROCTOR

Modern Proctor Dryers are being installed in a large number of progressive mills because of the many advantages they offer over less recent equipment.

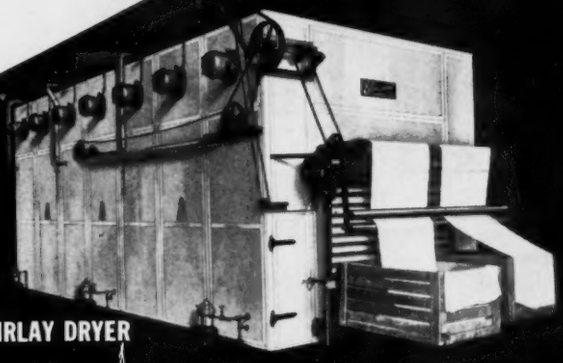
They reduce production costs and upkeep.

They bring considerable savings in time as well as in floor space.

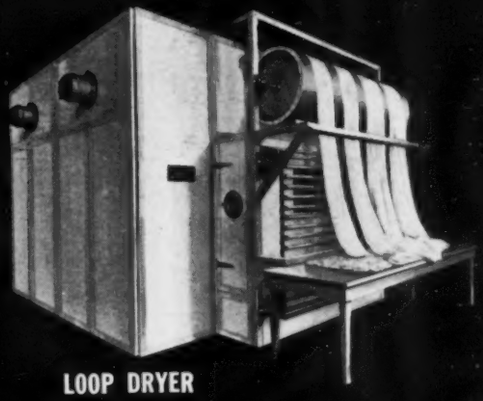
The new Proctor Dryers do a vastly superior, more uniform drying job than older machines. Although production is speeded up by the new Proctor Dryers, high quality of the product is not only maintained, but often enhanced. Be modern; replace obsolete dryers with new equipment made by the leaders.

# DRYERS

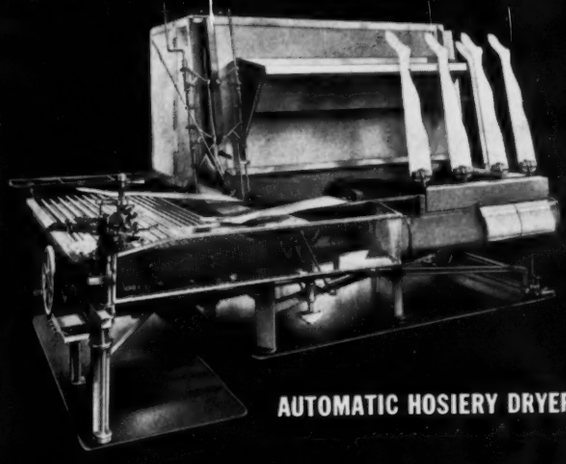
SUPER DRYER for RAW STOCK



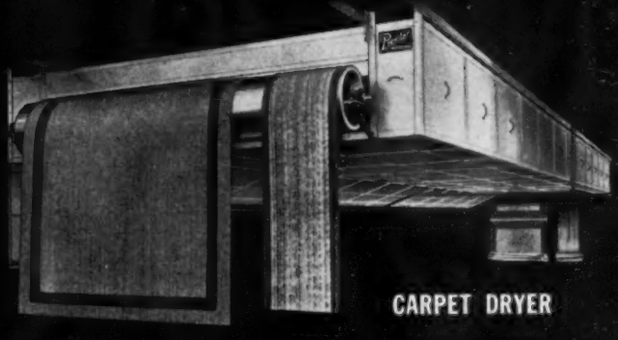
MULTIPASS AIRLAY DRYER



LOOP DRYER

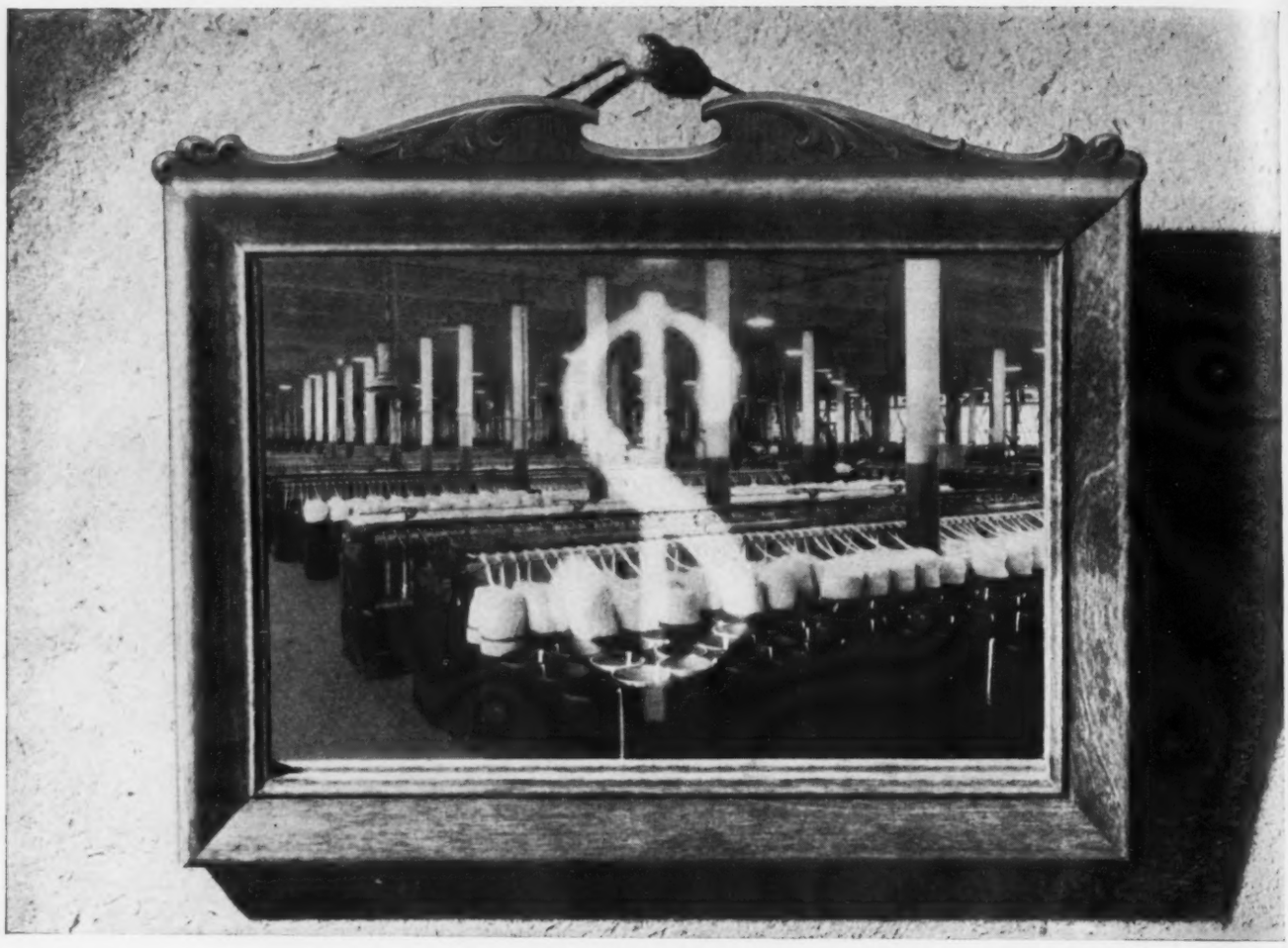


AUTOMATIC HOSIERY DRYER



CARPET DRYER

**PROCTOR & SCHWARTZ • INC • PHILADELPHIA**



# Yarn Processing Reflects a Profit with WHITIN EQUIPMENT

Hundreds of mills this year alone, can hold up a mirror to their yarn processing departments and find the profit sign reflected there, by the installation of Whitin equipment. To a far larger number of mills trying to get by without equipment changes, the same mirror would show nothing but loss.

Progressive mills have capitalized upon the far reaching improvements of Whitin engineers to increase production, to increase quality of product and to effect operating savings from the opening room straight through to the twister room.

By planned revampment, even over a period of years, the gap between obsolete and modern equipment remains constantly closed. In many instances that's been our job. If you care to know how a revampment program can apply to your mill we would like to show you "operating proof" in mills with problems similar to yours.

# WHITIN MACHINE WORKS

CHARLOTTE, N. C. WHITINSVILLE, MASS. ATLANTA, GA.

# DOES OBSOLESCENCE SHACKLE YOUR BUSINESS?

IF your knitting machines no longer satisfy the market's demand for style, profits are impossible.

Obsolescence is the insidious enemy of profitable production. It shackles your business with unnecessary labor costs and excessive upkeep expense. In spite of all your industry and skill, it smothers you with a host of competitors.

Scott & Williams offers you changes in gauge, attachments for new and novel effects, and, if your knitting machines are outmoded, a complete variety of new machines that will help you get your share of present and future business.

Established 1865

**SCOTT & WILLIAMS**

*Incorporated*

366 BROADWAY, NEW YORK, N. Y.

**"This is the Scott & Williams Machine Age"**

# "Firm, Even, Wrinkleless Rolls—with G-E Batcher Drives"—say plant engineers

"THE firm, even, wrinkleless rolls we get by using G-E batcher control seem almost too good to be true," say plant engineers at mills now reaping the advantages of using this modern equipment instead of the ordinary friction devices.

**Uniform Pull Assured**

With the G-E system, uniform tension on the batched cloth is quickly adjusted in advance. Because of the characteristics of the motor-and-control system, this tension is maintained as the roll builds up.

**Especially Desirable for Rayons and Silks**

This equipment makes possible faster batching of rayon and silk fabrics with less spoilage than was heretofore possible.

**Helps Preserve Finish**

Because tension on the cloth is uniform, G-E batcher drive also helps preserve the finish. There is no distortion of pattern such as will occur because of varying tension when friction devices are used.

**Apply to Any Make of Tenter**

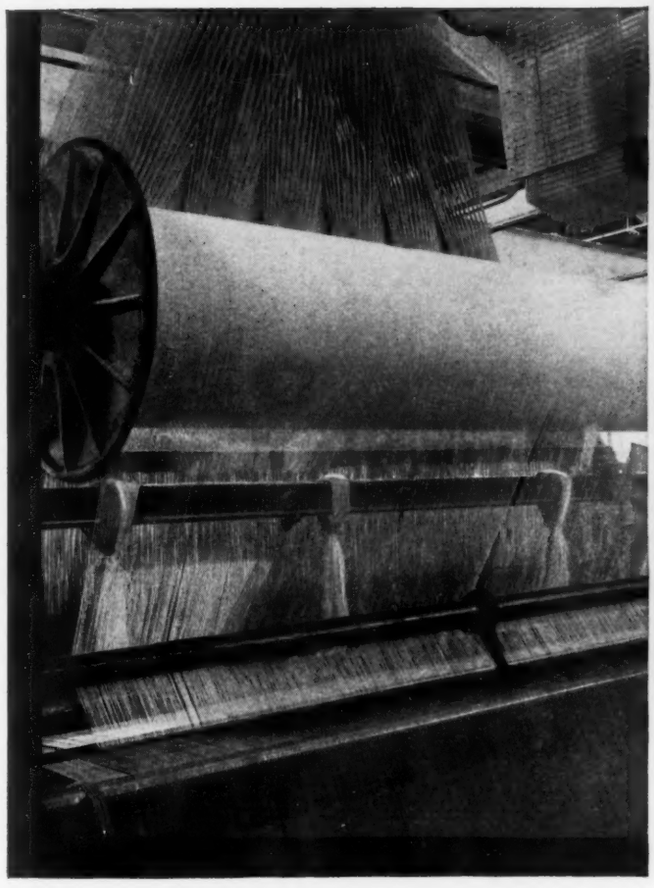
Whatever make of tenter you use, G-E batcher drive can be applied to it and will constitute an important item in your step-by-step mill improvements. For operating information write General Electric, Dept. 6—201, Schenectady, N. Y., giving the essential data on the present operation of your tenters.

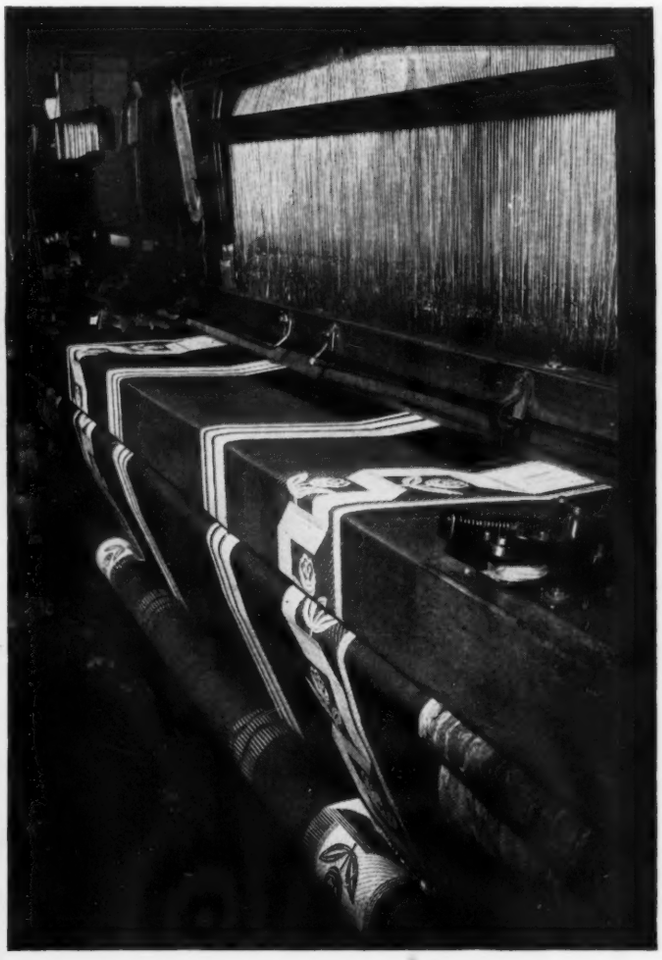
**GENERAL ELECTRIC**

011-253

# THROUGHOUT THE BATES MILL

## ...*for* 17 *YEARS*





*The selection and proper application of Texaco Lubricants developed especially for loom mechanisms assure maximum bearing protection, improved quality output, with vastly reduced oil throwing and spoilage.*

IN the Bates Manufacturing Company's mills at Lewiston, Maine, lubrication is considered an important element in maintaining efficient production schedules.

Since 1920, this company has used Texaco Lubricants consistently.

This "Down East" textile mill is a fine example of giving lubrication the importance it deserves . . . by letting Texaco Engineering Service cooperate with plant personnel in getting perfected lubrication throughout the plant.

These trained lubrication engineers are available for consultation on the selection and application of Texaco Textile Lubricants. Prompt delivery assured from 2070 warehouse plants throughout the United States.

Get in touch now with Texaco. Find out about these latest developments . . . what Texaco lubrication can mean to you. The Texas Company, 135 East 42nd Street, New York City.

# TEXACO TEXTILE MILL *LUBRICANTS*

**machine and hand knitting**

# YARNS

**[ french and bradford spun ]**

**for**

**BATHING SUITS - HOSIERY**
**OUTERWEAR - UNDERWEAR**

**Colors available in Hand Knitting Yarns include White in Oil, Heathers and Oxfords. Also Scotch Tweed colors in a wide range of combinations.**

**American Woolen**
**COMPANY, INCORPORATED**
*THE GREATEST NAME IN WOOLENS
*REG. U.S. PAT. OFF.

225 FOURTH AVENUE • NEW YORK CITY

# "SINCE MY LAST CALL ON THE ABOVE PLANT I FIND"

—*A Typical Beginning* of some 25,000 impartial reports by Socony-Vacuum Field Engineers...to guide us in refining oils suited to actual Plant conditions

*How Socony-Vacuum Engineering Service can save money in your plant:*

1. Curb losses that boost power consumption and costs.
2. Decrease maintenance.
3. Improve production results by greater machine efficiency.
4. Lower lubrication costs.
5. Help your men find ways to devise important economies.

TONIGHT—in hotels across the country—Socony-Vacuum Field Engineers are writing their reports!

News of what Gargoyle Lubricants did today *in service*.

News of new methods...problems.

These hard-boiled facts leave no loopholes. Gargoyle Lubricants must meet operating conditions!

Because they do—Socony-Vacuum "Correct Lubrication" has saved millions in 110 different industries. Improved production. Lowered power, maintenance and oil costs.

The advice of a Socony-Vacuum Engineer may result in surprising economies in your own plant. A word from you will bring him there.

# SOCONY-VACUUM

**CORRECT LUBRICATION**

GARGOYLE Mobiloil Lubricants

SAVES MONEY FOR INDUSTRY

Read what 71 Years' Lubricating Experience...the Greatest in the Oil Business...can do for You. See Next Page.

# THIS MARKETING POLICY MEANS "CORRECT LUBRICATION" FOR EVERY TYPE OF PLANT

INDUSTRY ALMOST ALWAYS FINDS that the controlled use of high-grade Gargoyle Lubricants pays for itself many times over and that they actually cost less to use than ordinary lubricants.

But, for such equipment as does not justify the highest-grade lubricants, Socony-Vacuum Engineers will always recommend a lower-priced lubricant when consistent with true economy.

Socony-Vacuum, with a complete line of products, can supply the lubricants best fitted for the requirements of the individual lubricating job as determined by specific operating conditions.

Socony-Vacuum Engineers bring you years of world-wide experience and direct cooperation with manufacturers of equipment. Lubrication Profit is the inevitable result.

SEND FOR THE SOCONY-VACUUM REPRESENTATIVE: *The services of a trained Socony-Vacuum Engineer are available at all times in helping your men to solve lubrication problems.*

## SOCONY-VACUUM OIL CO.

INCORPORATED

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA

GARGOYLE
Lubricants

# HOW MUCH HANDICAP

## CAN YOU GIVE YOUR COMPETITORS?

**The manufacturer, business man, banker, or property owner who delays—through friendship, habit or misinformation—in finding out the facts about Improved Risk Mutual insurance is presenting competitors with a comfortable handicap.**

**Perhaps you can afford to do that. Perhaps you have such a lead on the field that considerations of economy or increased protection against fire hazards (and loss of customers or tenants) can have no effect on you. But few individuals or companies are in such an impregnable position.**

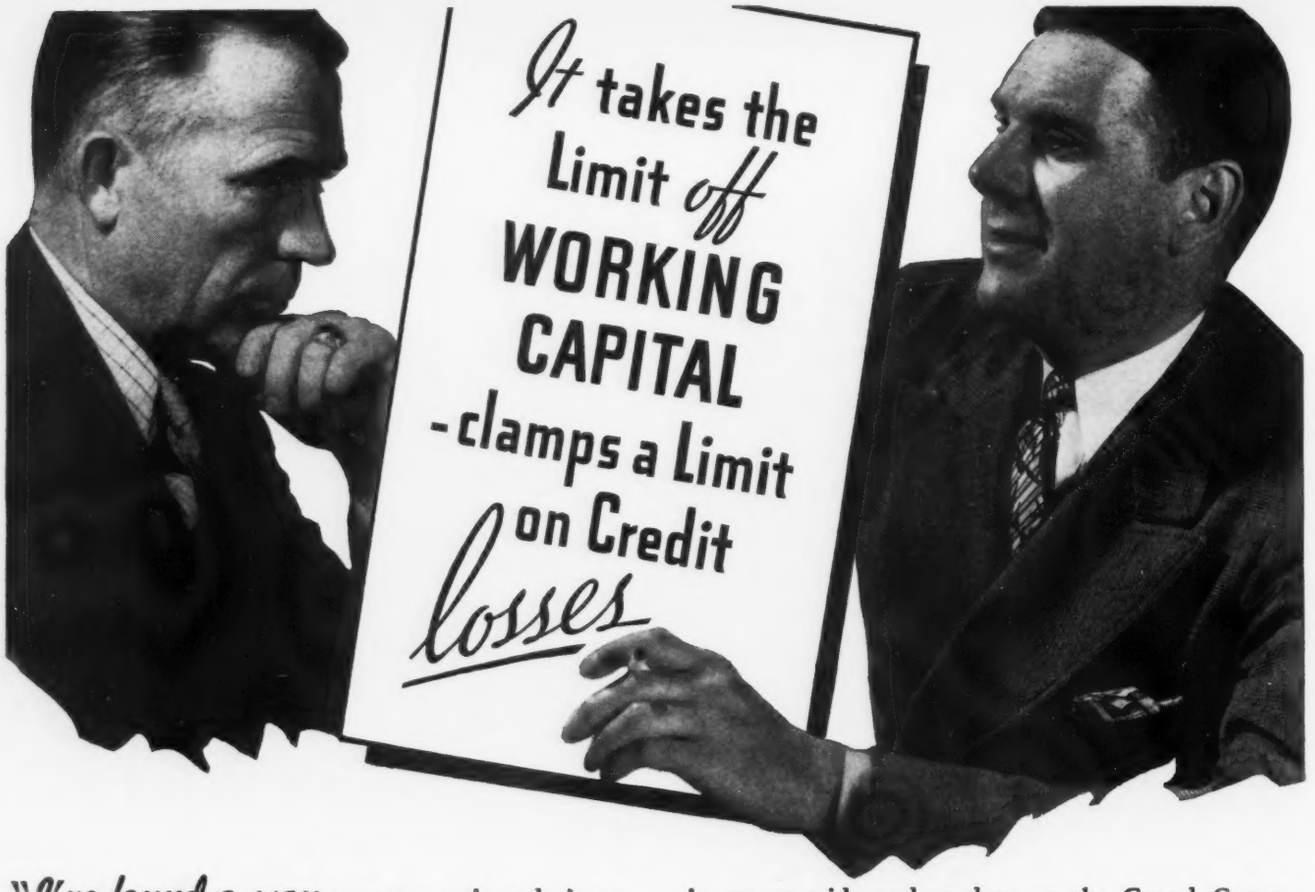
**If you need the competitive advantages that you can legitimately acquire, we suggest that you get in touch with this group of old, tested companies—a group that is increasing its percentage of the total fire insurance of the country year by year.**

IMPROVED RISK MUTUALS · IRM · NEW YORK, N.Y.

# IMPROVED RISK MUTUALS

**60 John Street, New York**

**A nation-wide organization of old established, standard reserve companies writing the following types of insurance: Fire • Sprinkler Leakage • Use and Occupancy • Tornado and Windstorm • Earthquake • Rents • Commissions and Profits • Riot and Civil Commotion • Inland Marine**




**"I've found a way** to stop a serious drain on my profits and re-employ the money that used to go vacationing at my expense . . . money that was tied up in accounts receivable. It works for me all the time now.

"Doubtless, you've heard of Commercial Credit Company's open account financing plan? So had I. I recognized its many advantages, and knew that it was being widely used by many flourishing business concerns, but I had one mental objection to it I couldn't overcome. Let me explain.

"I'm as modern and progressive as anyone in production and sales methods. But in matters of credit and finance there's a conservative streak in me as wide and as deep as the Grand Canyon. I wouldn't count my chickens while they're still eggs. Neither would I discount my receivables and *use my own money profitably in my own business.* One of my large accounts might fail. Then I'd be on the spot. Invariably, I would decide to wait for my money.

"Then Commercial Credit Company introduced its new LIMITED LOSS clause and changed the whole picture for me. Briefly, here's just what it means. I can now cash in on as small or as large a part of my receivables as necessary, without any red tape or delay. I can protect myself against any credit loss beyond my normal bad debts. The margin between what it costs to do this, and what the use of my capital nets me in discounts saved and new profits earned, is far in my favor. My customers get their regular terms—pay in the regular way.

"I'm still a conservative. Nothing is different except that I now have less financial worry, more liquid capital and a more thriving business."

★ Commercial Credit Company's modern industrial financing is available to you on terms that enable you to liquify your receivables and re-employ the money profitably and safely. Investigate the new LIMITED LOSS clause introduced exclusively by Commercial Credit Company. It is a protective feature that will interest you. Full details on request . . no obligation.

**COMMERCIAL CREDIT COMPANY**

NEW YORK CHICAGO **BALTIMORE** PORTLAND, ORE. SAN FRANCISCO

# KEEP Two Jumps AHEAD

## with Calcomine Yellow Brown K Extra

It's easy to keep two jumps ahead when you use Calco Dyes. They make production run more smoothly and bring added economies to your dyeing operations.

Calcomine Yellow Brown K Extra is a worthy descendant of a long line of Azo forebears and is a splendid example of the improvements in quality which can be made when intermediates that are virtually chemically pure are combined with careful workmanship to produce a dyestuff.

Calcomine Yellow Brown K Extra possesses excellent solubility and leveling properties and will prove to be the most economical base for brown and mode shades. Aftertreatment with copper, chrome, and acetic acid reddens the shade but greatly increases the fastness to light and washing.

**CALCO DYES ARE BETTER BUYS**

**THE CALCO CHEMICAL COMPANY, INC. · BOUND BROOK, NEW JERSEY**

Calco

A DIVISION OF AMERICAN CYANAMID CO.

BOSTON · PHILADELPHIA · PROVIDENCE · NEW YORK · CHARLOTTE · CHICAGO · PATERSON

Certified STEEL HEDDLES manufactured by a process insuring smoothness of eye, long wear, high tensile strength, durability and corrosion resistance of plating. Heddles purchased in open market are examined and tested periodically by
PITTSBURGH TESTING LABORATORY
as an independent check upon Emmons' standards of manufacturing control.
EMMONS LOOM HARNESS COMPANY
LAWRENCE, MASSACHUSETTS

*. . . sincerely yours*

Emmons makes no unbacked-up claims for its "Certified" Steel Heddles. We manufacture them as carefully and as well as modern equipment and inspection methods will permit. So when you make your choice you'll know what you get from Emmons — we have gone to the famous Pittsburgh Testing Laboratory and had them buy "Certified" Heddles in the open market — and test them for the points of quality that are most important to you.

No manufacturer can be more sincere than that to his customers. When we say Emmons is "Certified"— we mean it. The Heddles . . . taken at random from production . . . have been independently checked for quality every month — and our manufacturing standards *have had to be high* to meet that monthly check up.

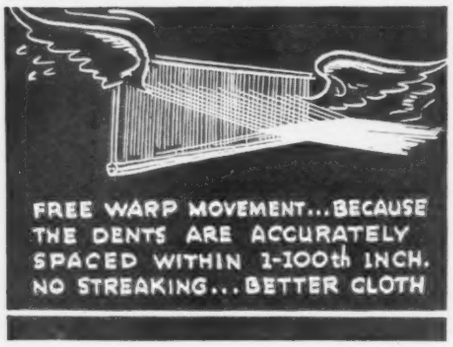
So far as we know, Emmons "Certified" Steel Heddles are the only ones on the market that give you this definite, proven standard of quality — by which you can judge them.

There are large stocks of standard sizes available always for quickest possible delivery. May we have your order?

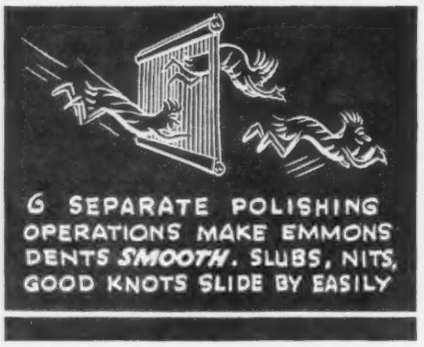
# Emmons

"CERTIFIED" STEEL HEDDLES

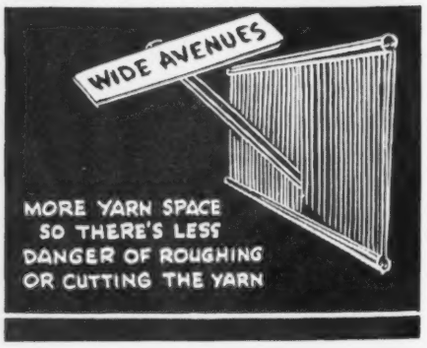
## "MULTIPLIED YARN SPACE" REEDS



FREE WARP MOVEMENT...BECAUSE THE DENTS ARE ACCURATELY SPACED WITHIN 1-100th INCH. NO STREAKING...BETTER CLOTH



6 SEPARATE POLISHING OPERATIONS MAKE EMMONS DENTS *SMOOTH*. SLUBS, NITS, GOOD KNOTS SLIDE BY EASILY

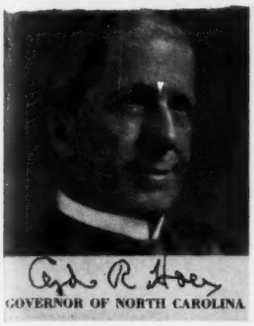


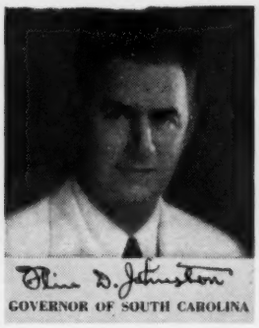

MORE YARN SPACE SO THERE'S LESS DANGER OF ROUGHING OR CUTTING THE YARN

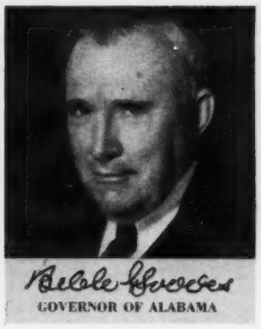
"Certified" Steel Heddles • "Multiplied Yarn Space" Reeds • "Chafeless Cord" Cotton Harness

Described in TEXTILE WORLD YEARBOOK

## TO AID AND PROTECT INDUSTRIAL DEVELOPMENT IN THE SOUTHEAST


GOVERNOR OF NORTH CAROLINA


GOVERNOR OF SOUTH CAROLINA


GOVERNOR OF ALABAMA

GOVERNOR OF GEORGIA

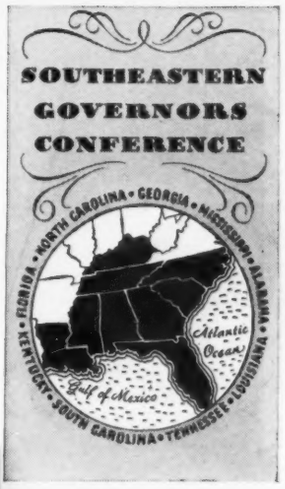
GOVERNOR OF FLORIDA

# WE, THE GOVERNORS . . .

WITH a view to aiding industrial expansion of our section and the stabilization of employment we, the Governors of the Southeastern States, set forth the following objectives:

- **1** *Equitable freight-rates as affect the Southeast.*
- **2** *Uniform taxation policies.*
- **3** *Friendly labor attitude between employer and employee.*
- **4** *Cooperation with Federal Government on proper major policies affecting industrial development.*

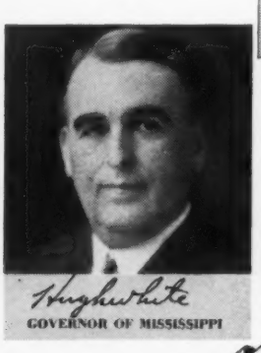
It will be our aim by working together on these objectives to maintain conditions favorable to sound industrial development so that the Southeast will reap the full benefits of the ever-increasing trend toward Industrial Decentralization.


SOUTHEASTERN
GOVERNORS
CONFERENCE
NORTH CAROLINA • GEORGIA • MISSISSIPPI • ALABAMA • FLORIDA • KENTUCKY • SOUTH CAROLINA • TENNESSEE • LOUISIANA
Atlantic Ocean
Gulf of Mexico

GOVERNOR OF LOUISIANA

GOVERNOR OF TENNESSEE

GOVERNOR OF KENTUCKY


GOVERNOR OF MISSISSIPPI

## THE SOUTHEAST PAYS NO TRIBUTE TO WINTER

What share of your profits does winter demand? What tribute is taken from your workers' wages by snow and sleet and unrelenting cold?

The underlying factor behind the great trek of industry to the Southeast is its year 'round moderate climate. A climate that reduces capital investment, cuts construction costs, and lowers production costs all along the line. A climate that makes possible better standards of living at *lower living costs* for both labor and management. Investigate the possibilities of a Southeastern location for your type of manufacture. On the basis of *facts* you will, inevitably, come to the conclusion that you can substantially increase profits by placing all or part of your production in the Southeast. And you will find our people ready and anxious to cooperate with you in making your enterprise a success.

*Outstanding advantages which the Southeastern States offer to manufacturers are:*

**Unlimited supply of raw materials.**

**Ample power at low rates.**

**Excellent transportation facilities to growing markets.**

**Native-born labor—efficient and reasonable.**

*And especially, above all others,*

***Unexcelled year 'round moderate climate which makes possible:***

**Lower living costs for better standards of living.**

**Lower production costs.**

**Lower construction costs.**

**Lower capital investment.**

**LAWRENCE WOOD ROBERT, JR.**
*Industrial Consultant*
*Southeastern Governors Conference*
*Bona Allen Bldg., Atlanta, Georgia*

The Supremacy of
PERKINS
CALENDER ROLLS
is the natural result
of the broadest
experience in the
textile industry
CALENDERS
ROLLING · CHASING · FRICTION
SCHREINER · SILK · CHARMEUSE
EMBOSSING
B·F·PERKINS & SON, INC.
ENGINEERS AND MANUFACTURERS
HOLYOKE·MASS
NO CALENDER
CAN BE BETTER
THAN THE ROLLS
IN IT

"Wool top is known by the comb circles it keeps. In our family we've stuck to HOOD Comb Circles since 1885 because we've never found a substitute for HOOD'S experience."

**The manufacture of comb circles is an intensely personal job. Accuracy in the making, long wear and performance-in-use are products of long lives of experience and skilled hands. Our craftsmen average over 20 years in service, individually up to 50 years. *Commission combers*, who do a sizeable percentage of all wool combing, especially appreciate Hood's know-how. Since they do nothing but make tops, it is imperative that their equipment keep costs down and deliver quality—always. No wonder, then, that commission combers *almost without exception* use Hood Comb Circles. Follow their example! Get the best Comb Circles money can buy—HOOD . . . We make Comb Circles to any specification and repair Comb Circles of all kinds and types. R. H. Hood Co., 19th & Westmoreland Streets, Philadelphia, Penna.**

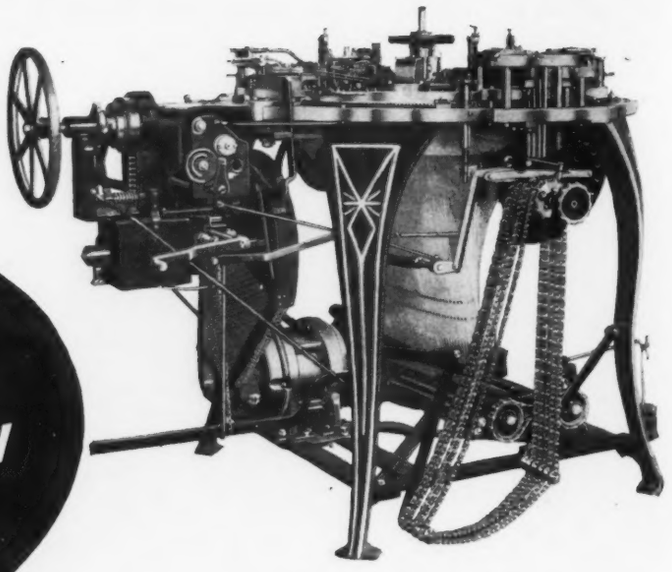
# HOOD

## · COMB CIRCLES ·

OF COURSE YOU'VE USED HOOD EVENIZED APRONS

*Nature forms—Hood reforms. The HOOD EVENIZING PROCESS reforms Nature's uneven but finest hides into uniform, straight running, long wearing aprons. We also make Fallers and all-steel Plows. Authorized agents for Harding's Pins and Comber Needles.*

# PROFITS from the day they start!



*Body Transfer Machine*

A real Leighton machine that will guarantee you maximum profits. No more looping or sewing on cuffs and bottoms, thus eliminating this expense, also handling costs and delays. Now you can figure new low minimum costs, and get those orders not before obtainable.

We now offer these machines in 2½ to 10 cut. Multiple feeds. Two speed control. Two or three color striper. We will mail samples and complete information immediately on request.

*— Built right to knit right —*

Est. 1873 Inc. 1894

**LEIGHTON**
**MACHINE COMPANY**
**MANCHESTER, N. H.**

*Other:*
**STANDARD LEIGHTON MACHINES**

✧

Three Needles-
Selective Rack
Jacquard
Jacquard Eyelet
Single Stitch
Pattern Wheel
Stripe and Check
Collar and Cuff
Border
Shaker
Rubber
Sleevers
Cap
Legging
Transfer Cap

—

*All sizes*
Fine and Coarse
Gauges

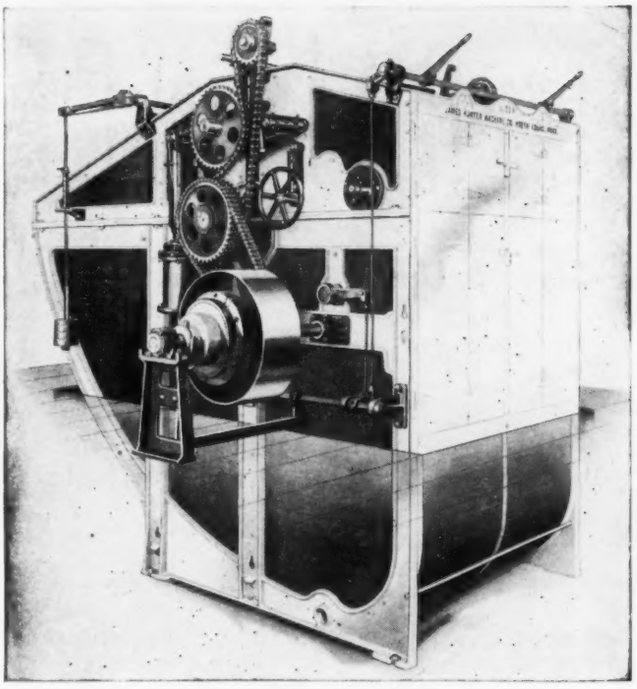


Illustration shows Hunter Stainless Fulling Mill Model No. 26. Hydraulic Top Roll Tension furnished as extra equipment.

# HOW

## MILLS REDUCE THEIR FULLING COSTS

THESE facts show why Hunter Stainless Steel Fulling Mills can save on wet finishing costs. Of course they reduce dead loss. Smooth polished surfaces cut flocking. More weight is delivered in cloth. Less goes down the drain. Stainless steel linings, guides, stop motion, crimping boxes and sectional rubber rolls eliminate practically all ordinary repairs plus lost production time due to breakdowns.

IN addition Hunter Stainless Steel Mills give you twice to four times the capacity. Uniformity is greatly improved and production increased—often to the point where twice the load is delivered in two-thirds or even half the time . . . More facts about this equipment are set forth in a Bulletin on these mills. It will not obligate you to write for a copy. Send the coupon today.

**JAMES HUNTER MACHINE COMPANY**
NORTH ADAMS, MASSACHUSETTS

SOUTHERN AGENTS:
Carolina Specialty Co., Charlotte, N. C.

WESTERN REPRESENTATIVE:
Mr. E. G. Paules, 343 Bendix Bldg., 1206 Maple St., Los Angeles, Cal.

JAMES HUNTER MACHINE CO.
North Adams, Mass.

Without obligation, please send free bulletin describing Hunter Stainless Steel Fulling Mill Model No. 26.

Name..... Title.....

Company.....

City..... State.....

# THE FINEST BALANCE

## REQUIRES THE FINEST ENGINEERING

Allis-Chalmers engineers now set a new high standard in DYNAMICALLY BALANCING Sheaves for TEXROPE V-BELT DRIVES. Over their entire range of speed, up to 6,000 rpm. these sheaves have no vibration period . . . they run like a watch movement from 1 rpm. right up to 6,000 rpm.

Allis-Chalmers has made the DYNAMICALLY BALANCED SHEAVE commercially available for applications that require the most extreme accuracy and precision, and can therefore tolerate no vibration at any time or at any speed.

Your V-BELT drive applications may not require such fine balance, but whatever TEXROPE V-BELT DRIVE equipment you buy will have the same caliber of engineering ability and experience built into it, that produced the ALLIS-CHALMERS DYNAMICALLY BALANCED TEXROPE SHEAVE.

*Write for Vari-Pitch Bulletin No. 1261-A*

**Belts by Goodrich**

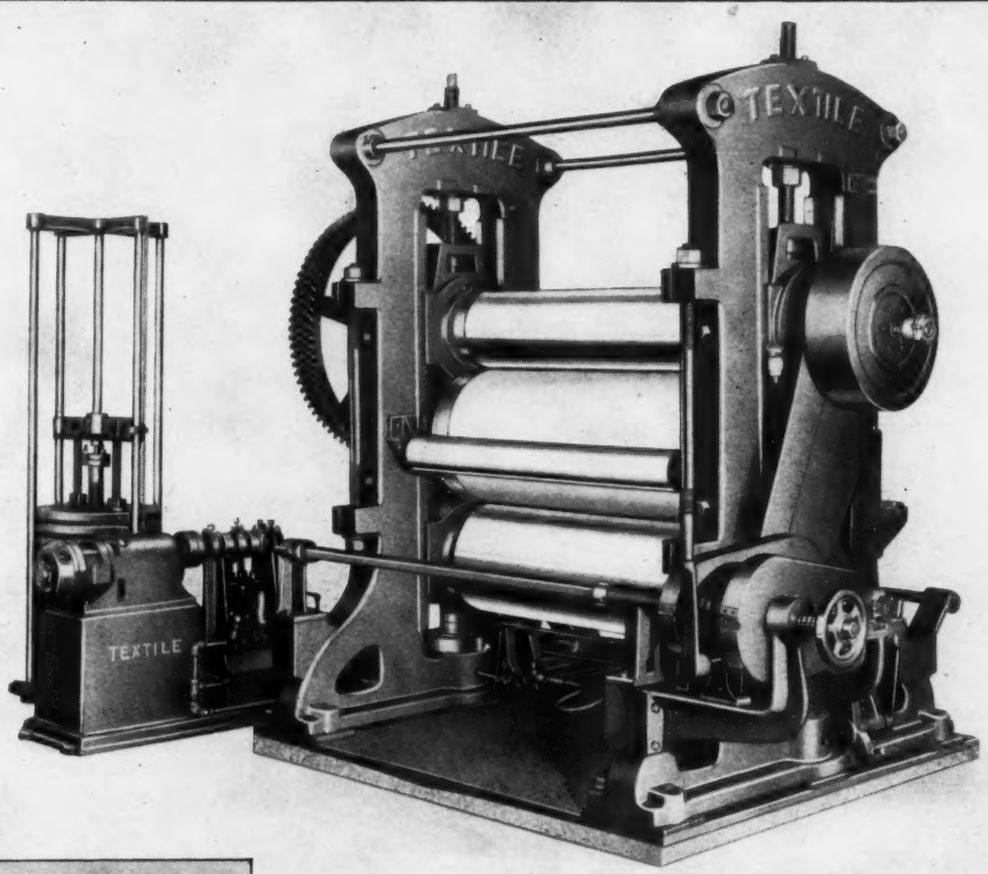
743

TEXROPE DIVISION

ALLIS·CHALMERS

MILWAUKEE WISCONSIN

# *Textile's* New Rayon Calender




*"Textile"*
Builds a Complete Line of Rayon Finishing Machinery

PADDERS
DYE JIGGS
COLOR KETTLES
PRINTING MACHINES
HOT AIR DRYERS
AGERS
STEAMERS
WASHERS
SOAPERS
CYLINDER DRYERS
TENTERS
CALENDERS
COOLING MACHINES
COTTON BACK FINISHING MACHINES

THE 3-Roll Hydraulic Calender illustrated is one example of the many special machines built by *"Textile"* for use in connection with the finishing of Rayon Fabrics.

Outstanding features of this installation include Extra Heavy Spherical Roller Bearings for Roll Journals; Balanced Hydraulic Pressure available at a maximum of 70 tons total (35 tons per side) and controlled in fine degrees down to a minimum of 8 tons total (4 tons per side); Control of pressure made possible by a specially designed Accumulator without the necessity of removing weights from same; Hydraulic Pump of the Directly Connected Motor Driven Design without the use of chains or belts; approved Rayon and similar fabric type let-off batch fittings with tension control, etc., and Double Speed Batcher or Winder with finely adjusted control of finished fabric tension.

Practical experience and extensive research has given *"Textile"* the knowledge necessary to correctly design and fabricate custom-built equipment to meet individual requirements.

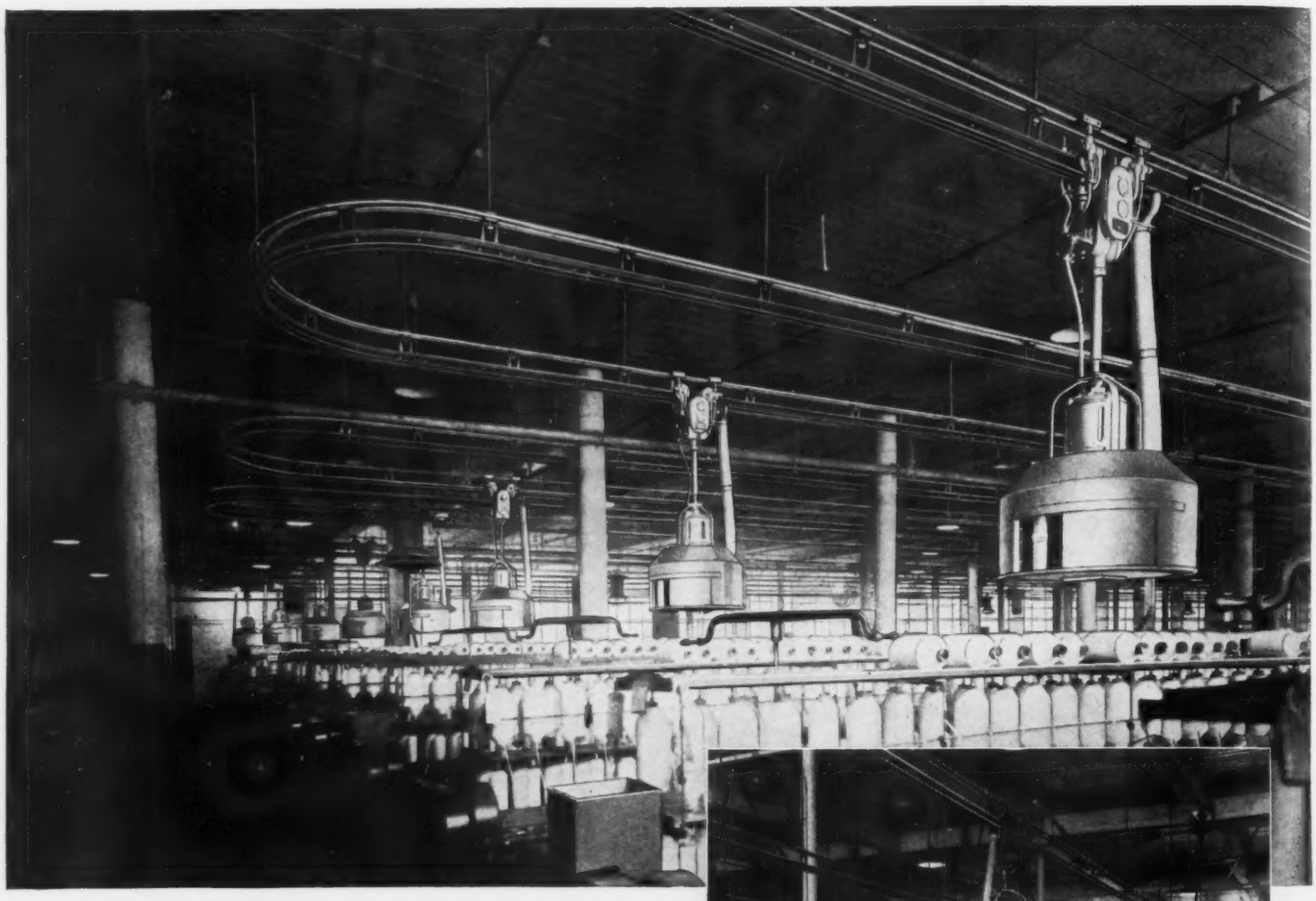
## The Textile-Finishing Machinery Co.

New York Office
50 Church St.

Southern Office
Johnston Bldg., Charlotte, N. C.

*Providence, R. I.*

Manufacturers of Machinery for Bleaching, Mercerizing, Dyeing, Drying, Printing and Sanforizing Textile Fabrics

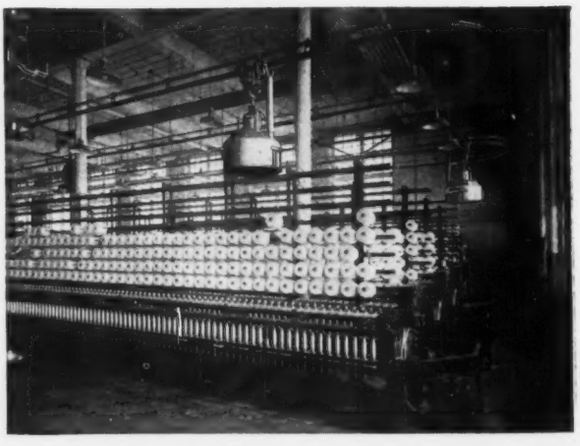


Automatic Cleaners over long draft spinning frames.

Cleaners over high speed winders.

## Controlled CYCLONIC Cleaning

Over spinning, winding, twisting and warping machinery American MonoRail Automatic Cleaners demonstrate the effects of their cyclonic action. In every case a cleaner yarn is produced at a lower cost by the swirling action of its air currents which remove free lint before it accumulates. Let experienced textile engineers show you why American MonoRail equipment operates without interruption to cleaning intervals. Write for the new book explaining the advantages of Automatic Cleaning. Send your letter to The American MonoRail Company, 13108 Athens Ave., Cleveland, Ohio.

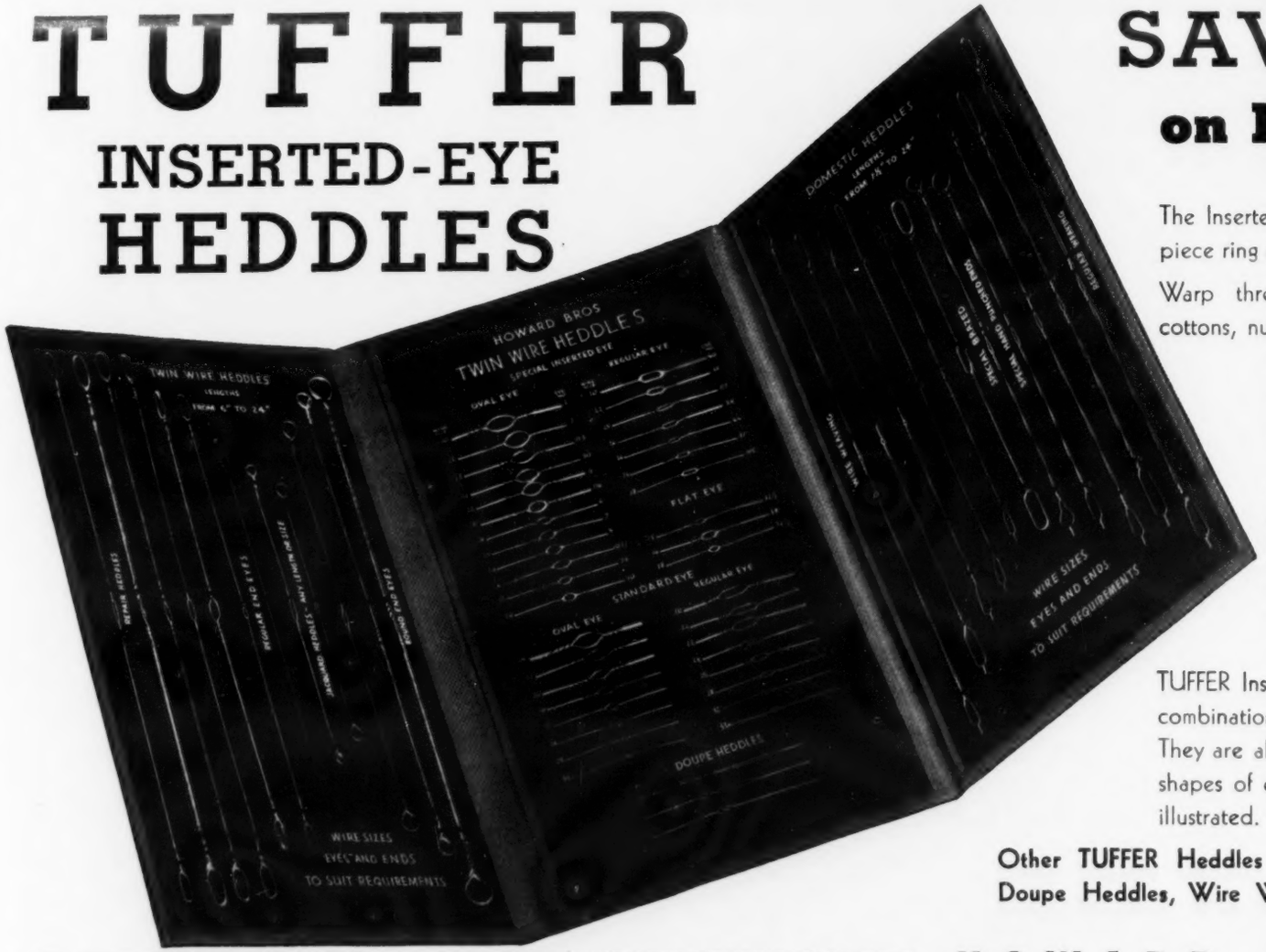


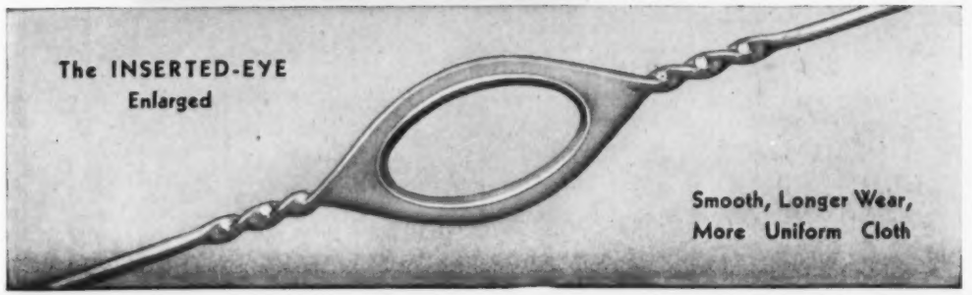
Cleaners over twister creels.

**AMERICAN MONORAIL** *Automatic* **OVERHEAD CLEANERS**

*for Spinning, Winding, Spooling and Warping*

# TUFFER
## INSERTED-EYE HEDDLES




# SAVE WEAR
## on Heddle and Warp

The Inserted-Eye—exclusive with Howard Bros.—is a one-piece ring of metal inserted in TUFFER Twin Wire Heddles.

Warp threads—particularly heavier woolens, worsteds, cottons, nub and slub yarns slide through smoothly without breakage, and the Inserted-Eye does not wear and chafe them. There are less broken ends, less seconds, and more uniform cloth.

**A prominent woolen mill reports: "We have tried all kinds, but this has them all stopped. We have less Warp trouble and while they cost more at first they are cheap in the long run and we advise all woolen and worsted mills to use them."**

TUFFER Inserted-Eye Heddles can be made in any size or combination of center and end eyes for your particular work. They are also available for quick delivery in many sizes and shapes of eyes and ends as well as several sizes of wire as illustrated. Write for samples.

**Other TUFFER Heddles are Repair Heddles, Jacquard Heddles, Doupe Heddles, Wire Weaving Heddles and Domestic Heddles.**

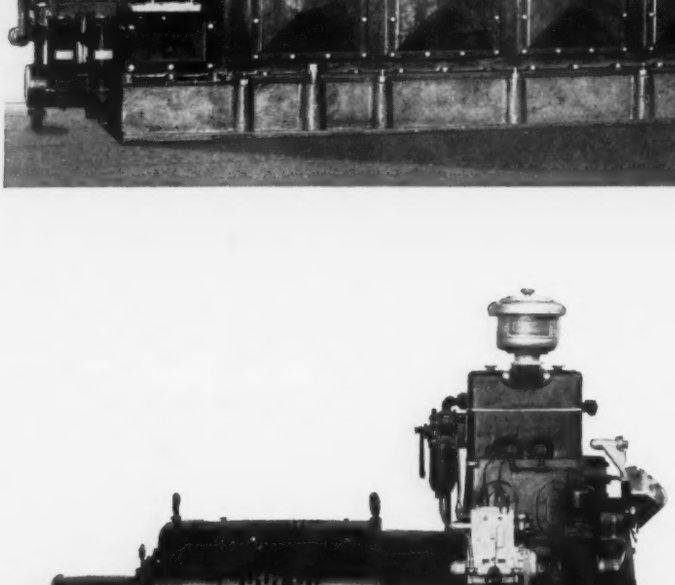
# HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: **WORCESTER, MASS.**

**Southern Plant:** 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas

**Products:** Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards—Napper Clothing, Brush Clothing, Strickles, Emery Fillets, Top Flats Recovered and extra sets loaned at all plants—Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant—Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles

# ADAPTABLE! . . . DEPENDABLE! . . . ECONOMICAL!



A money-saving answer to many industrial power problems can be found with one or more Superior Diesel engines . . . somewhere between the extensive range of sizes and types from the massive, 810-horsepower, stationary engine . . . to the small, 1200 R. P. M. generating set of 10 kilowatts capacity.

If it will pay to modernize your power plant or establish a new power plant . . . surely it will pay to investigate these modern, dependable Diesels which have established a reputation for many profitable applications.

THE NATIONAL SUPPLY COMPANY

SUPERIOR ENGINE DIVISION

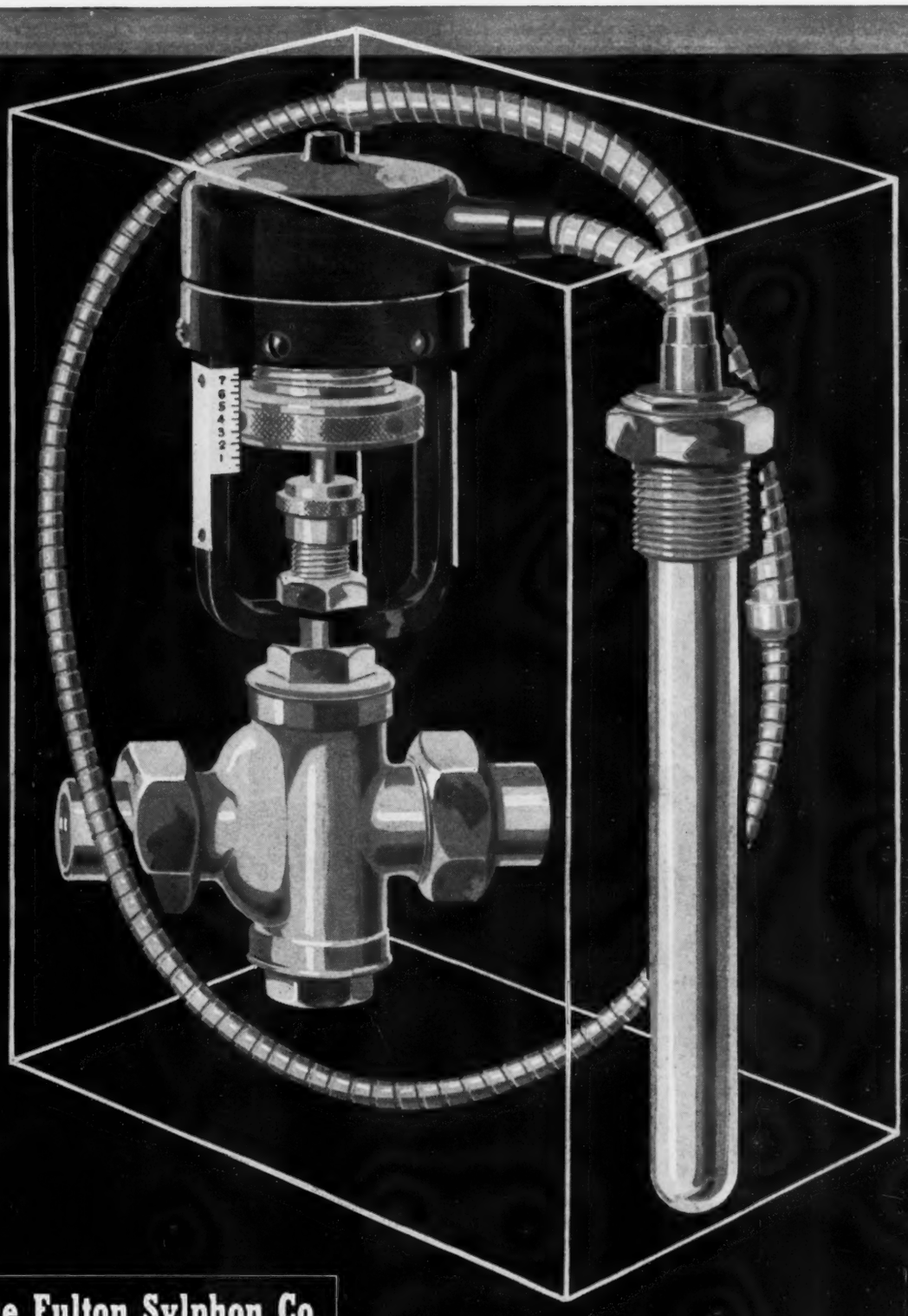
LOS ANGELES, CALIFORNIA SPRINGFIELD, OHIO PHILADELPHIA, PA.

Superior DIESELS

HEAVY DUTY MODELS: 50 to 810 H.P., 250 to 720 R.P.M. • HIGH SPEED MODELS: 15 to 150 H.P., 900 to 1800 R.P.M.

# "PACKAGED"

## *Temperature Regulation..*



Have you ever stopped to think that you can buy all the accurate, dependable temperature regulation you need for many processing jobs in your plant...

—for a relatively few dollars

—packed in a box ready for instant service, complete with all the power that will ever be needed for faultless operation day in and day out

—requiring no auxiliary equipment, wiring, motors, switches, relays, air compressors or high pressure piping—no expensive engineering counsel, no complicated "systems"

—that can be easily and quickly installed by any steamfitter!

Investigate Sylphon Control. These self-contained, self-powered, self-sufficient control units are regulating refrigeration and heat processing temperatures from 40° below zero to 350° F. above in more than 250,000 installations. They are offered by the pioneers and world leaders in self-contained temperature control instruments, with over 35 years' experience in industrial control problems.

Ask for a nearby Sylphon representative to call—or write for Bulletin X T 20.

●

*Illustrated at right:* No. 921 Sylphon Temperature Regulator. A compact, accurate, rugged, dependable unit for application on many kinds of equipment where space is at a premium—cost is a factor and simplicity is highly desirable.

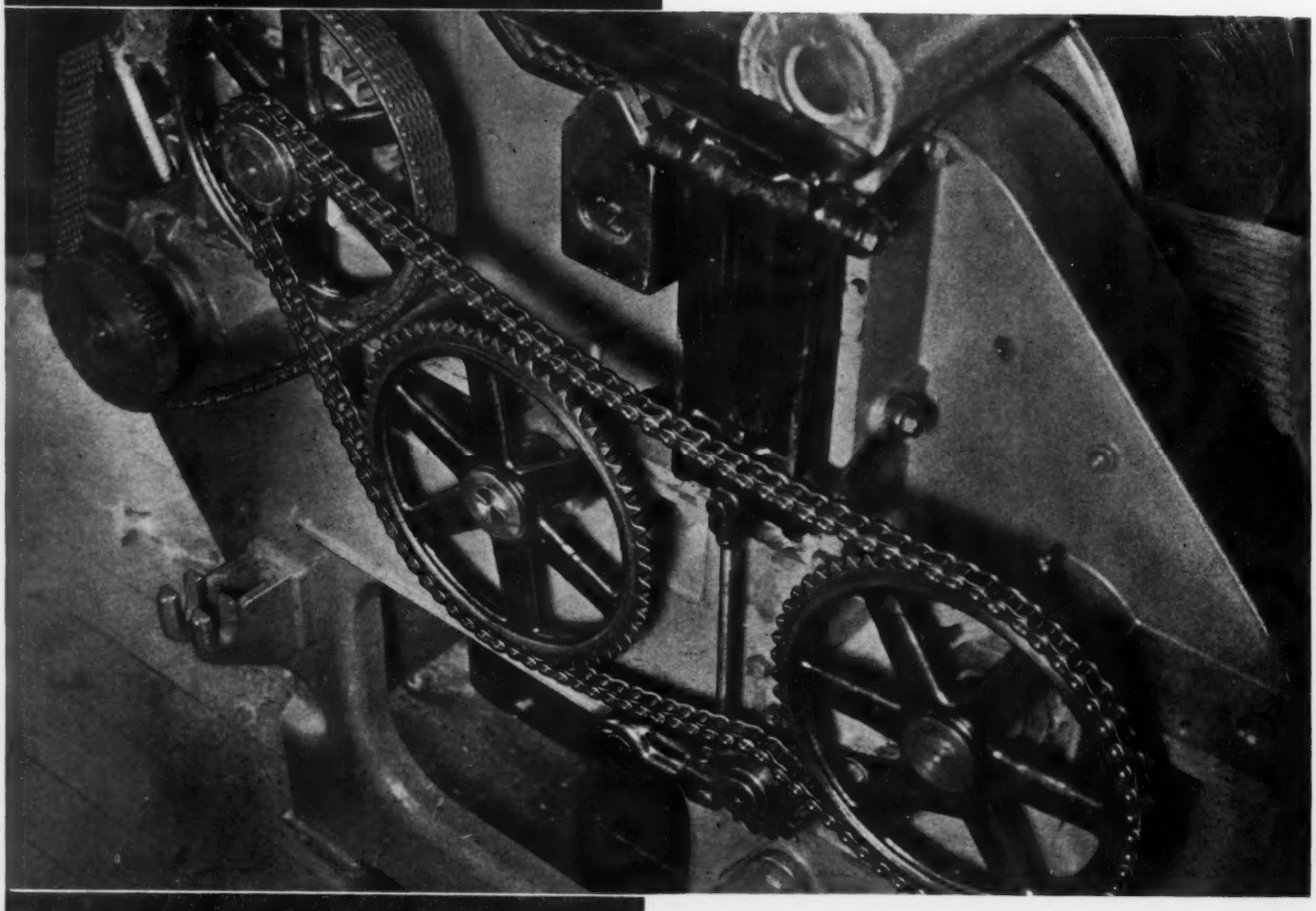
**The Fulton Sylphon Co.**
KNOXVILLE, TENNESSEE
*Representatives in All Principal Cities in U. S. A. and in Montreal, Canada and London, England*

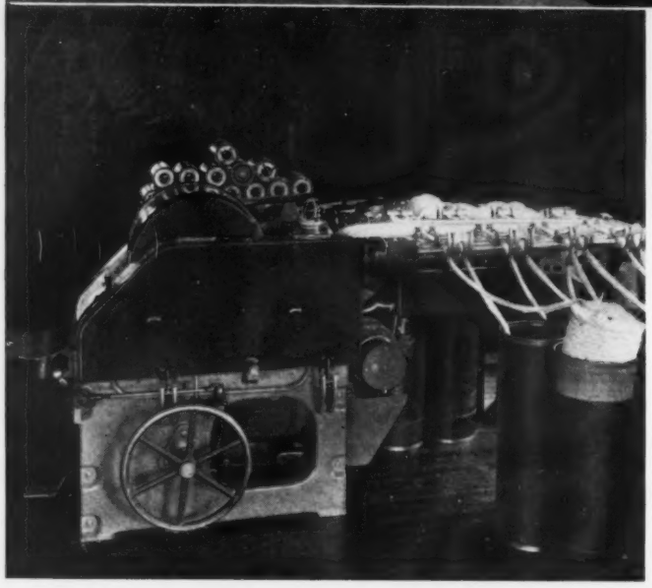
# SYLPHON *Control*

"POWERED BY THE TEMPERATURE IT REGULATES"

Saco Lowell's new Sliver Lap Winder is designed for improved production speed and quality of product. Whitney Chains play an important part in maintaining this high performance.

# Design Again we say for Performance



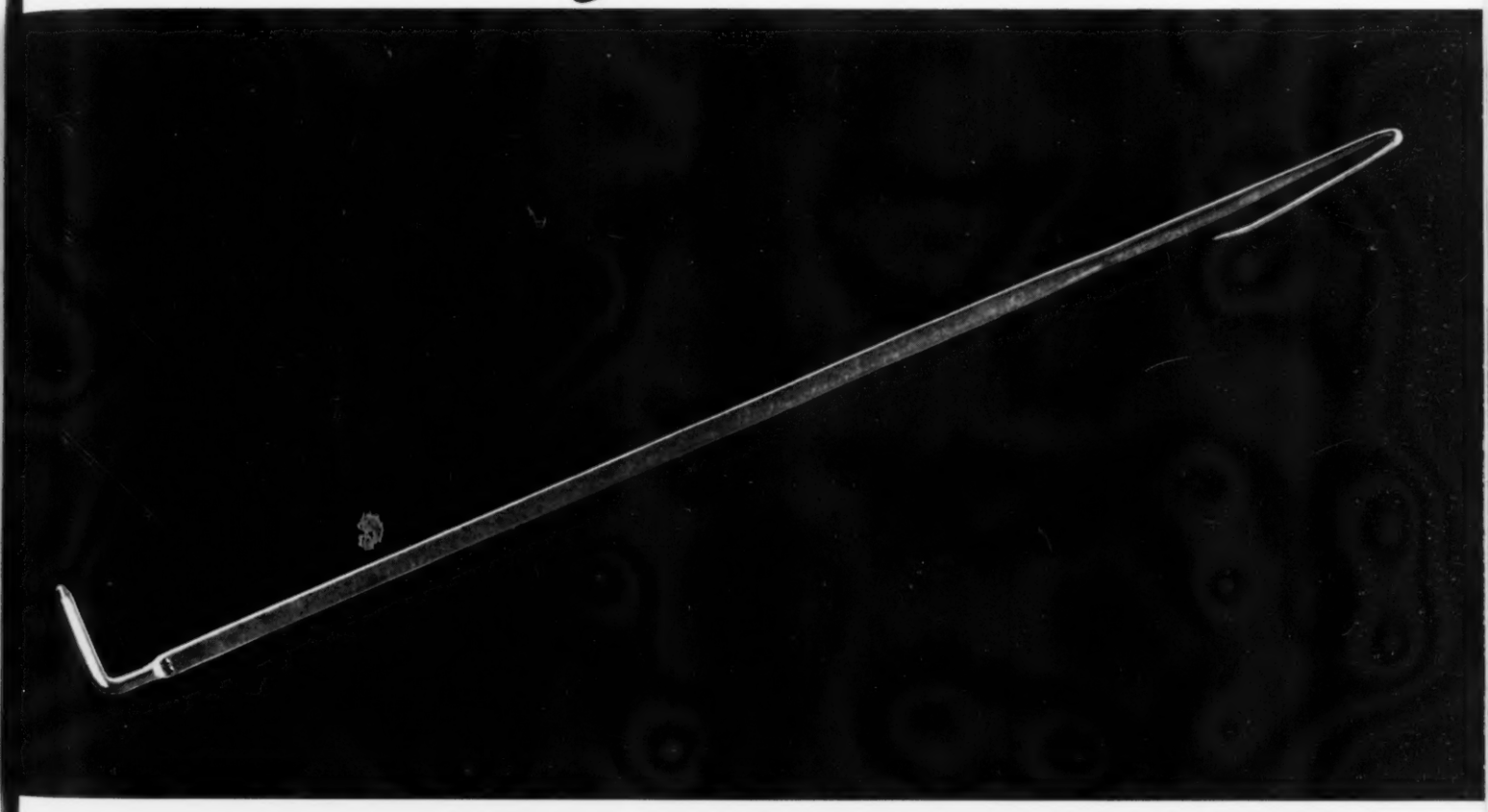


**Performance does not just happen, it must be designed into a machine, using the combined experience of the engineer, manufacturer, and supplier of component machine units.**

**Whitney Chains were specified for the new Saco Lowell Sliver Lap Winder because they give smooth dependable power transmission with design advantages offered by no other one type of transmission medium. It will pay you to try Whitney Chain Drive performance on your own equipment. The Whitney Chain & Mfg. Co., Hartford, Connecticut.**

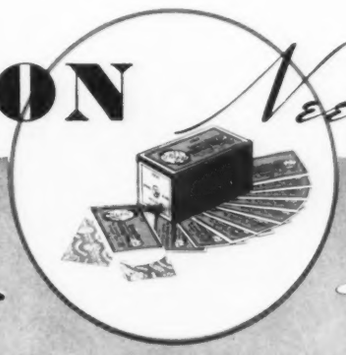
## WHITNEY CHAIN DRIVES

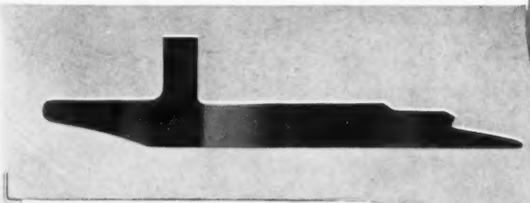
# UNIFORM *finish*

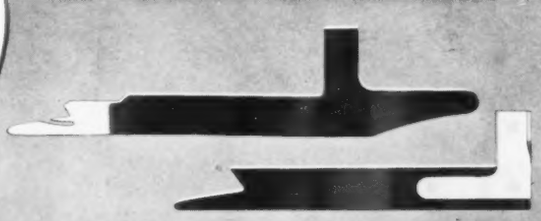


● Smoother finish not only assures a freer movement of thread across the surface of the needles, but greatly reduces yarn damage. Torrington applies machine precision in the finish of Torrington Needles. That's one of the many reasons why discriminating knitters like to work with them. They know they are smooth . . . and uniformly smooth . . . because they are made by the most accurate methods known. Torrington sinkers, dividers and split dividers are made with the same exacting precision.

**TORRINGTON** *Needles and Sinkers*







# KNITTING
## YOUR CUSTOMERS WILL REMEMBER

● Some mills working with the same quality or yarn maintain a consistently higher standard of knitting than others. Care in the choice of needles often spells the difference. Do your needles measure up to the yarn you use? Why not let Torrington quality work for you? Their machine-made finish, temper and uniform dimensions have made Torringtons the choice of hard-to-please knitters throughout the knitting world.

**TORRINGTON** *Latch* **NEEDLES**

**THE TORRINGTON COMPANY**

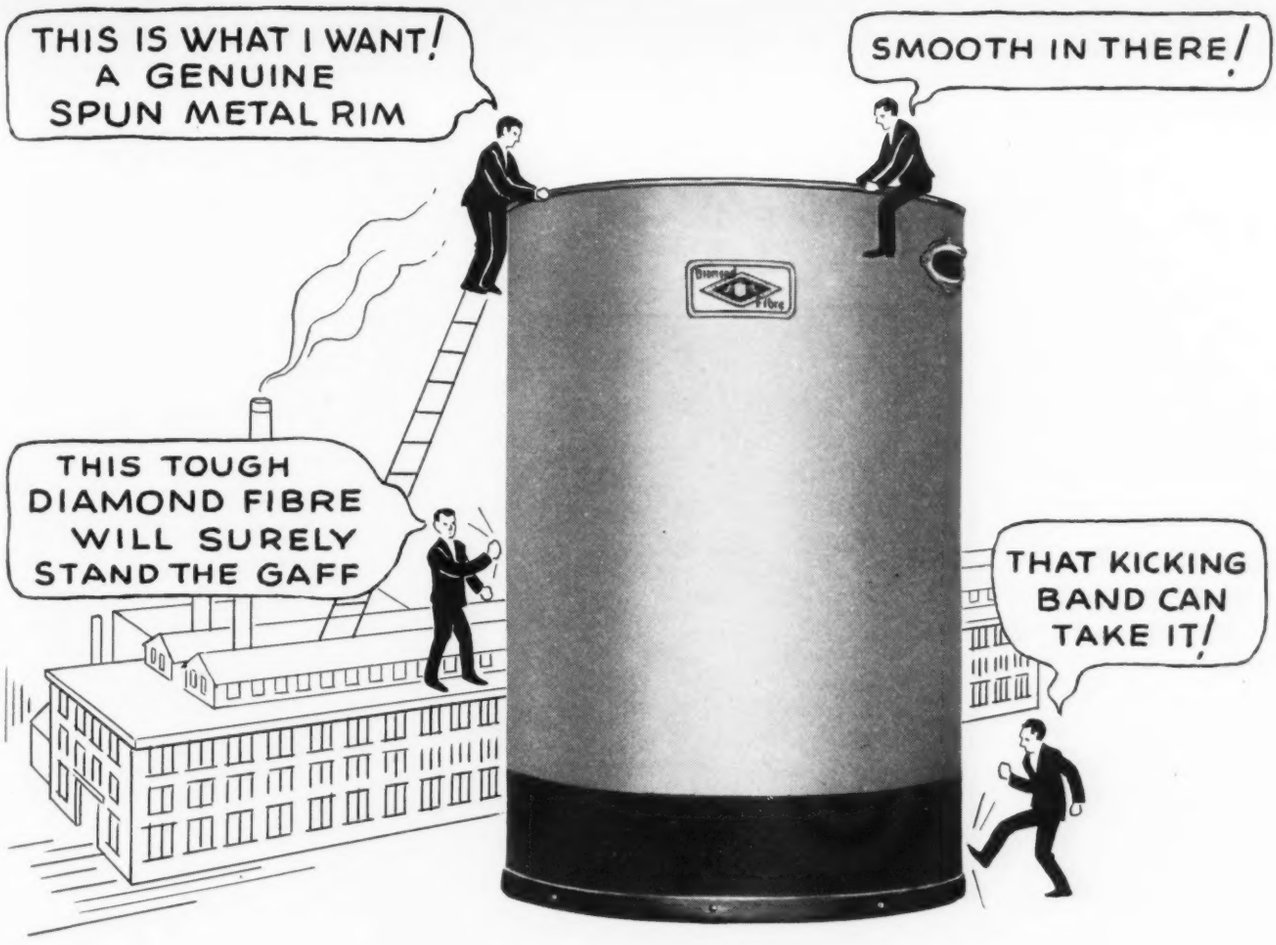
The Torrington Company, 1640 Fairmount Ave., Phila., Pa.
The Torrington Co., Inc., 200 Fifth Ave., New York, N. Y.
The Torrington Company, 538 South Wells St., Chicago, Ill.
The Torrington Company, Guilford Bldg., Greensboro, N.C.
The Torrington Co., Ltd., 137 Wellington St W., Toronto, Ont.

**TORRINGTON, CONN., U. S. A.**

The S. M. Supplies Co., 210 South Street, Boston, Mass.
Los Fabricantes Unidos, 964 Calle Belgrano, Buenos Aires

**Factories at**

Torrington, Conn. — Coventry, England
Upper Bedford, Quebec — Aachen, Germany


THIS IS WHAT I WANT! A GENUINE SPUN METAL RIM
SMOOTH IN THERE!
THIS TOUGH DIAMOND FIBRE WILL SURELY STAND THE GAFF
THAT KICKING BAND CAN TAKE IT!

# *Barrels of Value in* DIAMOND FIBRE MILL BARRELS

Here's a barrel that has everything but faults. Big, commodious, strong—yet light, easy to handle and easy to clean. As a container or conveyor of materials in process or finished products it ranks high in mills throughout the country.

Tough Diamond Fibre is used for the body of the barrel. The standard top rim is genuine spun metal. The handles are reinforced with metal. There is a wide fibre kicking band around the base and the wood bottom, which is standard, is securely fastened to the fibre with drive screws which go through the outside metal rim, the two layers of fibre and into the stout wood bottom. When desired, metal bottoms can be furnished. The fibre kicking band is standard, but barrels can be furnished with metal kicking band if wanted. Barrels with rolled fibre top reinforced with heavy wire ring can be furnished on order. Standard diameters are 15", 16", 18", 20", 22", 24", 26", 28" and 30".

Diamond Fibre Barrels can be made to suit your particular handling problem. Several standard types are "siftless" for handling sugar, soap, cereals; powder barrels—using all non-ferrous metal; barrels with covers and leather trunk style handles; barrels on wheels. Tell us your problem and we'll design a barrel to solve it.

**CONTINENTAL-DIAMOND FIBRE CO.,**
**NEWARK, DELAWARE**

....We have a material handling problem, please have your representative call.

....Send us your complete Hollow Ware catalog.

Name.....

Address.....

.....

# COLOR AND SHADE ARE CHECKED

## *with daylight fidelity*

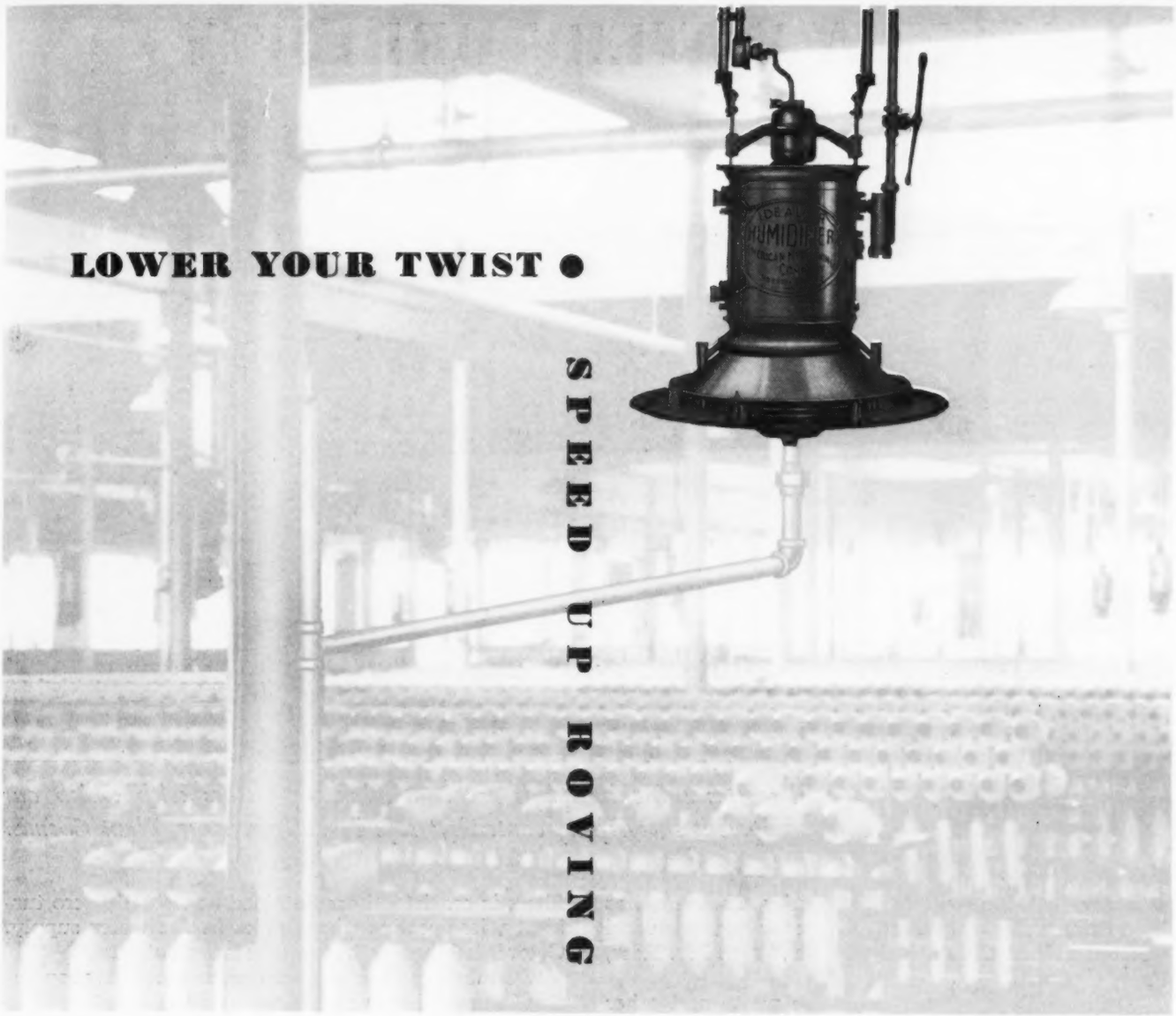
●In this modern air-conditioned inspection room of a large hosiery company engineered lighting plays an important role. Cooper Hewitt incandescent lighting assures restful seeing conditions for this critical visual task. Moreover, color and shade are checked with daylight fidelity under these "24-hour skylights."

The detail-revealing light of mercury vapor is the preferred light for textile companies everywhere. The new Cooper Hewitt lamps hang horizontally to give the best distribution of soft, non-fatiguing light. Important, too, is the fact that this productive light is now produced at 22% less cost.

By adding incandescent lamps to the mercury within the fixture lighting is obtained that closely resembles daylight values—for operations that require perception of color. Cooper Hewitt lighting . . . engineered to fit the job . . . is your assurance of the most profitable lighting system . . . General Electric Vapor Lamp Company, 849 Adams Street, Hoboken, New Jersey.

**GENERAL ELECTRIC VAPOR LAMP COMPANY**

855C




## ● LOWER COSTS!

**AMCO PIONEERED THE SELF-CLEANING ATOMIZER**

Amco No. 4, the first automatically self-cleaning atomizer — both air and water nozzles. Eliminates manual cleaning labor. Delivers smoke-like spray, without drip or feathering down.

In Roving Departments, many mills employ excessive twist to provide a sliver strong enough to prevent constant breakdowns. It is well to remember that delivery roll speed *decreases* with every increase in twist. Production drops with it.

Amco humidification in Roving Departments, from slubbers to final delivery, creates economies through elimination of static electricity, through greater speeds, lower twist, more even delivery, easier draft in spinning.

Every Amco installation is tailor-made, with the proper device and control for every characteristic, and the benefit of years of study in cotton, woolen, worsted and rayon manufacturing processes. There is no other way to provide "money-making air". American Moistening Company, Providence, R. I., Boston, Mass., Atlanta, Ga., Charlotte, N. C.

# AMCO HUMIDIFICATION

TAKE YOUR TEXTILE HUMIDIFYING JOB TO THE TEXTILE HUMIDIFYING SPECIALIST

# "RAW WATER TURBIDITY INCREASES 3200% IN TWO HOURS!

**. . . but Permutit equipment at Kent Manufacturing Company clarifies and softens it perfectly"**

*"Mud, mill wastes and chlorophyll are contaminating factors with which our Permutit equipment successfully contends," says Mr. Albert Rose, Plant Chemist*

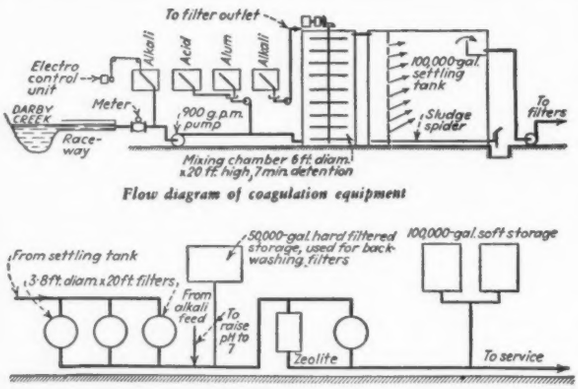
■ "Since 1843 the Kent Manufacturing Company has been using water from Darby Creek for its woolen and worsted mill at Clifton Heights, Pa.," says Mr. Rose, Plant Chemist.

"Other mills upstream pour dye waste and other waste liquors and effluents into the stream . . . storm water carries into it torrents of mud and silt . . . overhanging trees shed leaves to decay in the creek, liberating chlorophyll.

"The net result is a water supply containing an indescribable mixture of muck and pigment suspended in the water . . . a water supply where turbidity may rise from 60 ppm to 2,000 ppm in a 2-hour rain . . . in short, a water supply that would seem formidable indeed for any textile mill to cope with.

"In practice, however, it is not at all difficult . . . thanks to the efficiency of our Permutit-equipped filter plant and water softening installation. The flow diagram shows the set-up. Net results are: The effluent of the filters is consistently maintained at virtually zero turbidity, irrespective of variables in the water supply. Color is held under 5. Hardness is kept at zero.

"Permutit engineers have given us excellent cooperation in providing our equipment and in assisting us to obtain good results in its operation."




**Flow diagram of coagulation equipment**


50,000-gal. hard filtered storage, used for back-washing filters
100,000-gal. soft storage
From settling tank
3·8 ft. diam. x 20 ft. filters
From alkali feed
To raise pH to 7
Zeolite
To service

**Flow diagram of filters and zeolite softeners**

*Flow diagram showing use of Permutit filters and water softeners at the mill of the Kent Manufacturing Co., Clifton Heights, Pa.*

**Permutit**
*Water Conditioning*

*Special Bulletins* describing applications of Permutit Water Conditioning equipment for all types of textile mill process requirements, are available for textile technical men. Free copies will be sent promptly on request. Please address The Permutit Company, Dept. B, 330 West 42nd Street, New York, N. Y.

# MELLOL

## *A Dependable Softening Material*

The use of Mellol in finishing operations assures the textile finisher of results that are uniform, efficient, and economical. It produces a most satisfactory finish to cotton, rayon, silk, and mixtures of cotton and rayon piece goods that is free from odors, rancidity, and discoloration.

Manufactured from high-grade materials under strict control, the quality of Mellol is dependable.

The services of our textile specialists are available whenever you desire information or assistance in selecting textile chemicals. An opportunity to aid in solving your finishing problems is requested.

HERCULES POWDER COMPANY
*Incorporated*

Providence Drysalters Division

**Hospital Trust Building**

PROVIDENCE, RHODE ISLAND

PMT-19

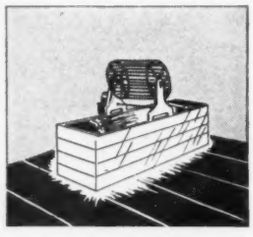
# THE SIMPLE FACTS ABOUT *Stainless* IN TEXTILE MACHINERY

Making the most efficient use of stainless steel in textile machinery is not the complex matter it may seem at first glance.

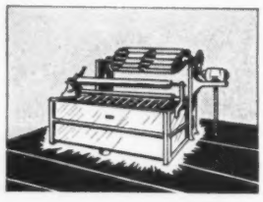
The facts about Stainless are simple. Dyes, bleaching agents and other solutions do not get along well with most of the old equipment materials. You know why from experience.

Stainless steel and, if you'll permit us to say it—Armco stainless—goes into your mill under no such disadvantage. Its dense smooth surface resists the corrosive action of dyes. A simple rinsing washes out one color and you are ready for another. And the right grade of stainless for the application will not corrode and ruin your work. Colors run true through batch after batch. Dyeing, bleaching, washing and all the other operations go faster than ever before.

Consider maintenance, too. Your Armco Stainless equipment will outlast the old equipment many times. What if it does cost a little more initially? The slight extra cost will pay for itself quickly; for the time you save changing colors goes on the credit side the first day and every day thereafter. Production immediately yields more profit—and keeps on yielding more profit.



There are a lot of technical things we could tell you, but these are the simple facts. For more information about the many applications and advantages of Armco Stainless Steel, see your equipment maker. Or, write us direct, and we will tell you some interesting things and refer you to a competent fabricator. The American Rolling Mill Co., Executive Offices, 2571 Curtis Street, Middletown, Ohio.



ARMCO

**ARMCO STAINLESS STEELS**

## LINK-BELT ROLLER CHAIN DRIVES CARRIED IN STOCK BY THESE DISTRIBUTORS:

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The Tidewater Sup. Co., Inc.
ATLANTA, GA.
Fulton Supply Co.
Link-Belt Company
AUGUSTA, GA.
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Slip-Not Belting Corp.
KNOXVILLE, TENN.
Knoxville Belting & Supply Co.
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Link-Belt Company, Pac. Div.
MARTINSBURG, W. VA.
W. H. Heiston & Son
MEMPHIS, TENN.
Industrial Supplies, Inc.
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Link Belt Supply Co.
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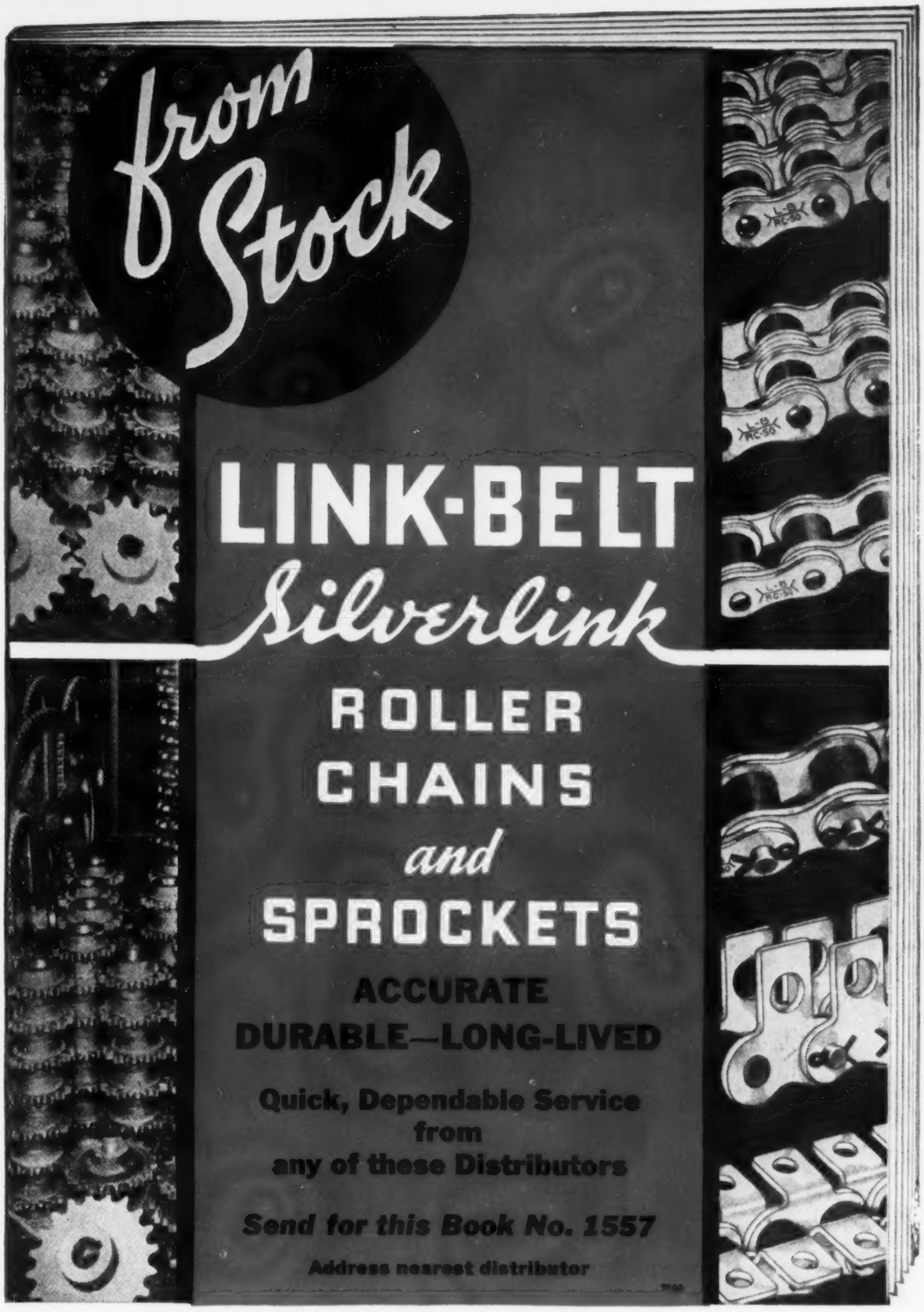
L. V. Hopkins Company
Southwestern Gin Mach. Shops
OMAHA, NEB.
American Machy. & Supply Co.
PATERSON, N. J.
Watson-Flagg Machine Co., Inc.




PHILADELPHIA, PA.
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Lamont Gear & Machine Co.
Link-Belt Company
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Colonial Supply Co.
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TORONTO, ONTARIO
Link-Belt Limited
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IN OTHER COUNTRIES

BOGOTA, COLOMBIA, S. A.
Tulio Ospina y Cia.
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General Electric, S. A.
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# INSIST ON mono-therm INDICATING THERMOMETERS!

Summed up it means just this: Foxboro mono-therm Dial-Type Thermometers give you the most for your money . . . and you can *always* read them. The Foxboro Company, 84 Neponset Avenue, Foxboro, Massachusetts, U. S. A. Branch Offices in 25 Principal Cities. Atlanta office: 101 Marietta Street Building.

## *they give you:*

***mono-therm system***—The finest thermal unit construction.

***Accuracy***—Precision over the entire scale range. Each instrument individually calibrated.

***Maximum Visibility***—From a distance of 20 feet and at a wide angle the 12-inch long scale is easily read.

***Flexibility of Location***—The indicator may be located as much as 200 feet away from the bulb. A number of instruments may be grouped where convenient.

***Longer life—Less wear***...no leakage...and least danger of breakage.

***Individual Certification***—Your guarantee of satisfactory instruments and dependable performance.

FOXBORO

REG. U. S. PAT. OFF.

*Certified* INDICATING THERMOMETERS

*16-hour operation in this winding room, where yarn is wound into cones, requires light conditioning as much as air conditioning. (In the oval inset) Good lighting helps in yarn inspection.*

# "LIGHT CONDITIONING TURNS NIGHT INTO DAY"

— SAYS SKENANDOA RAYON CORPORATION

Light Conditioning has helped the Skenandoa Rayon Corporation of Utica, N. Y. step up night production to equal that of the day shift. In addition, by providing better light for better seeing conditions, it has helped improve efficiency and working conditions.

Light conditioning offers textile mills many definite advantages including: 1-Decreased production costs; 2-Fewer "seconds"; 3-Improved quality of goods as a whole; 4-Better supervision; 5-Reduced accidents.

Like many other leading yarn and textile mills, the Skenandoa Rayon Corporation uses MAZDA lamps made by General Electric to light condition its plant. Because these lamps are brighter than ever before, provide more light at no additional cost, and *Stay Brighter Longer.*

When you light condition your mills, be sure to use these new, brighter G-E bulbs. For further details on how to go about light conditioning, write to General Electric Company, Dept. 166-T, Nela Park, Cleveland, Ohio.

• • •

**Light Conditioning provides the right amount of light and the right kind of lighting for seeing and comfort wherever eyes are used in factories, offices, or shops.*

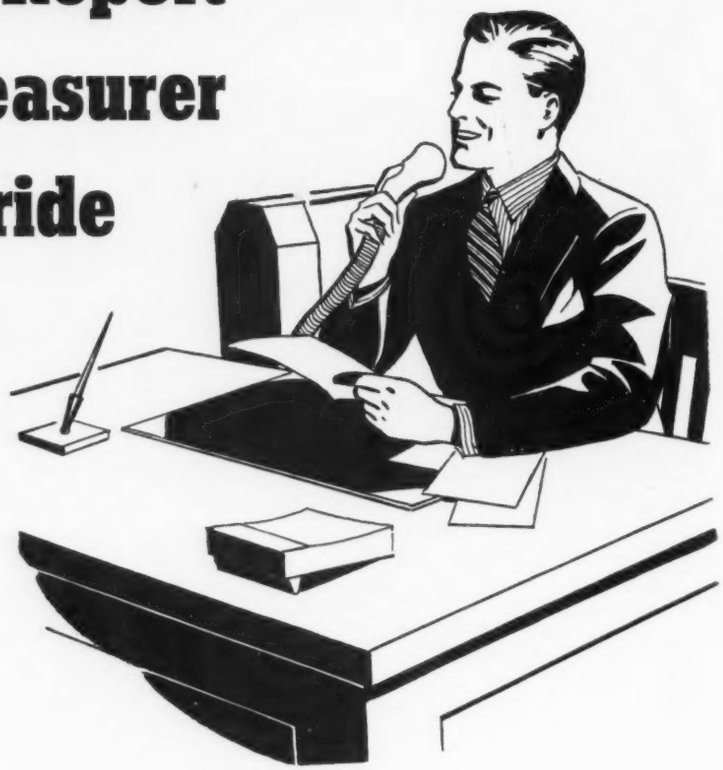
With a G-E Light Meter you can measure the light in your mill and see whether it meets modern seeing standards. Costs only $11.50.

LAMPS WITH THIS TRADE-MARK STAY BRIGHTER LONGER

FOR MORE LIGHT AT NO EXTRA COST, CHANGE TO THE NEW AND BRIGHTER MAZDA LAMPS MADE BY

GENERAL ELECTRIC

# TIME: Of Annual Report
# ACTION: The Treasurer Points with Pride



*(P. S. To Savings made by using Wolmanized Lumber*)*

*"... another factor in the improved statement is the increased efficiency of maintenance ... we used to have exorbitant bills for repair of roof decking, substructures, platforms, etc. Now use of Wolmanized Lumber has slashed the cost of keeping these parts of our property in good shape ..."*

Wolmanized Lumber* is cutting maintenance cost for more and more textile mills. It suits the high humidity conditions encountered. Like ordinary lumber, it keeps condensation to a minimum, and like ordinary lumber it is clean, easy to handle. But it is protected.

Damage by decay and termites is prevented by the Wolman Salts* preservative forced into the wood under pressure. These salts are converted in the wood into insoluble compounds, just as fast dyes are mordanted so there is no leaching, or loss of effectiveness. The treated lumber can be nailed, stained, and painted. It doesn't corrode metal.

The cost of protection with Wolmanized Lumber runs less than one average repair bill. It need be used only for locations exposed to moisture, such as roof decking, platform decks, subflooring, substructures, and so on. Your dealer can supply you. If you would like full information, write to AMERICAN LUMBER & TREATING COMPANY, 407 South Dearborn Street, Chicago.

WOLMANIZED
REG. U.S. PAT. OFF.
CERTIFIED
PITTSBURGH TESTING LABORATORY
PROTECTED AGAINST DECAY & TERMITES
A. L. & T. CO.

THIS SEAL BRANDED ON **WOLMANIZED LUMBER** CERTIFIES CORRECT TREATMENT

*Registered Trade-mark

**WOLMANIZED LUMBER**
*for Enduring Construction*

# USE MELLOL FOR

# MELLOW FABRICS

RAYON FINISHERS will find that the use of Mellol in their finishing operations has several distinct advantages.

Mellol gives a soft draping effect and is easily adapted to any desired softness for rayon fabrics.

Mellol finished fabrics will stand long storage without causing odors, rancidity, or discoloration of the goods.

Mellol can be used in processes where the usual sulphonated olive oil is unsatisfactory.

Mellol, produced under strict technical control, and from quality oils, is uniform. Every lot of Mellol can be depended upon for consistently good results.

For information about Mellol and other Drysalters' Textile Chemicals, write

*HERCULES POWDER COMPANY*
INCORPORATED

Providence Drysalters Division · Hospital Trust Building · Providence, Rhode Island

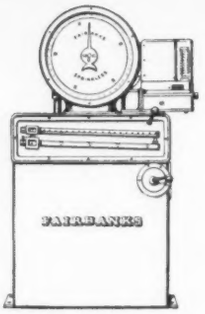
PMT-18

# STOLE A CARLOAD OF COTTON

EVERY day cotton vanished! Cotton that was paid for but never went through the looms.

They found the thief at last—*a scale*. The dial was in a dark corner and a hurried weighman habitually was reading it from an angle. The error was small, yet multiplied daily it meant more than a carload each year.

Today, a Fairbanks Printomatic stands guard over that scale and others in the same mill. At the touch of a button the weighing operation is completed, and a printed, accurate record is made. Fairbanks Printomatics now give this mill just as accurate a record and control of materials inventory as has the Treasurer's office of the company's finances.




The Fairbanks Printomatic Weigher can be attached to almost all existing Fairbanks dial scales. For full information on these and other Fairbanks Scales, address Dept. ASB-580-97, Fairbanks, Morse & Co., 900 South Wabash Avenue, Chicago, Ill. And 40 principal cities—a service station at each house.

7269-SA70.22

FAIRBANKS MORSE

DIESEL ENGINES
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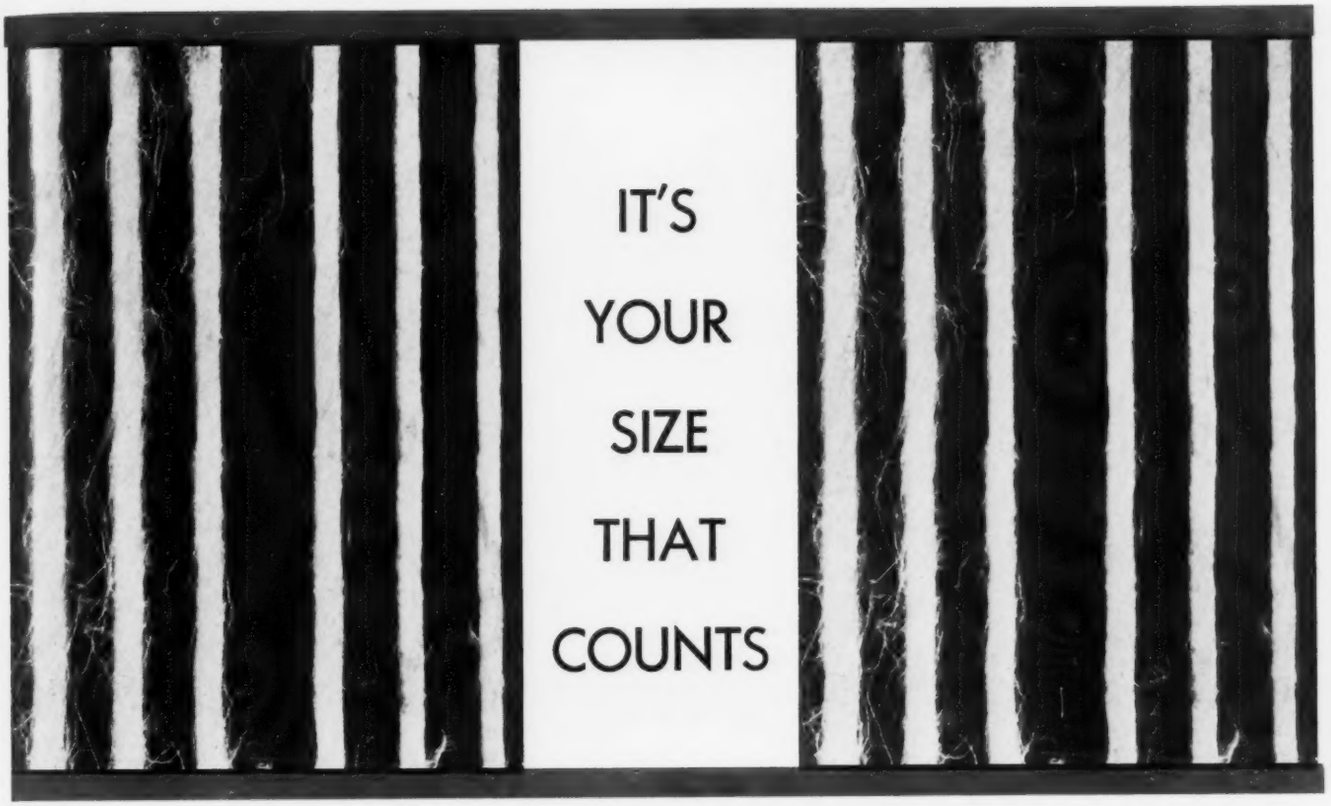
RADIOS
WASHERS
FARM EQUIPMENT
STOKERS
AIR CONDITIONERS

FAIRBANKS SCALES

Scales




## . . . *if you count your cost!*

And count your cost you must . . . for profitable production! Mills everywhere are profiting through the use of HOUGHTO-SIZES . . . saving as much as 75% per kettle over previous sizes.

In addition to their low cost, HOUGHTO-SIZES definitely provide greater breaking strength, and less decrease in elongation. This means fewer loom-stops . . . higher weave-room efficiency . . . controlled weights . . . and thus, still greater economy.

One large mill reports, "Any way you look at it, HOUGHTO-SIZE is superior to other materials . . ." Another mill reports, "a considerable decrease in elongation, and a saving of $2.21 per kettle, using 7 kettles per day." Still another reports 3% greater loom efficiency.

All substantial proof of the real value of HOUGHTO-SIZE! Let us give you additional proof on how HOUGHTO-SIZE can step up production and cut *your* sizing costs. Let us prove it *in your mill!* See coupon below for important offer!

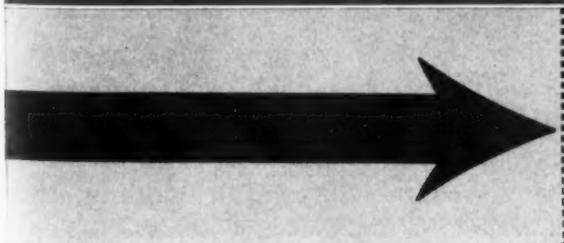
*The above unretouched pictures, taken by our laboratory, show unsized and HOUGHTO-SIZED warps.*

E. F. HOUGHTON & CO.

Charlotte PHILADELPHIA Chicago

Textile Processing Products for Cotton, Silk, Rayon and Woolen Mills . . . VIM Mechanical Leathers.

# *HOUGHTO-SIZE* FOR COTTON WARPS



**HOUGHTON: 240 West Somerset St., Phila., Pa.**

**Please send me, without obligation, a copy of your HOUGHTO-SIZE folder, and enter my name to receive complete Handbook on Sizing now being compiled.**

*Name*.....

*Company*.....

*Address*.....

*City*.....*State*.....

# Fewer Ends Down

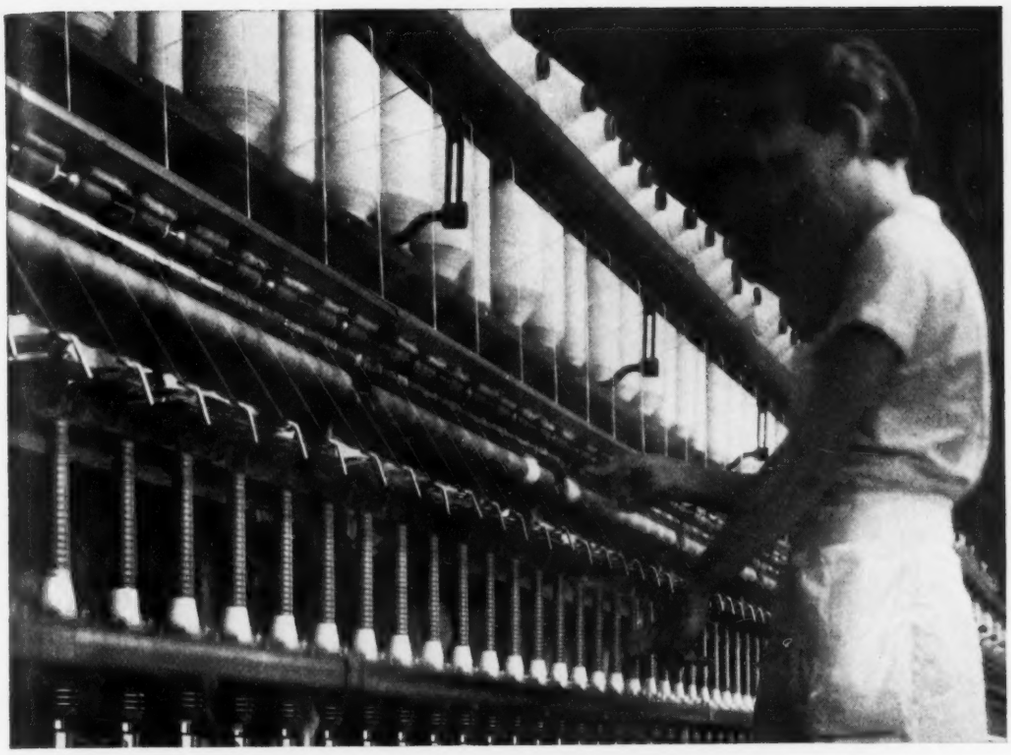
# Lower Oil Consumption

"We have fewer breaks and ends down since we standardized on Gulfgem Oil for our spindle lubrication," says this mill manager, "and we use less oil!"

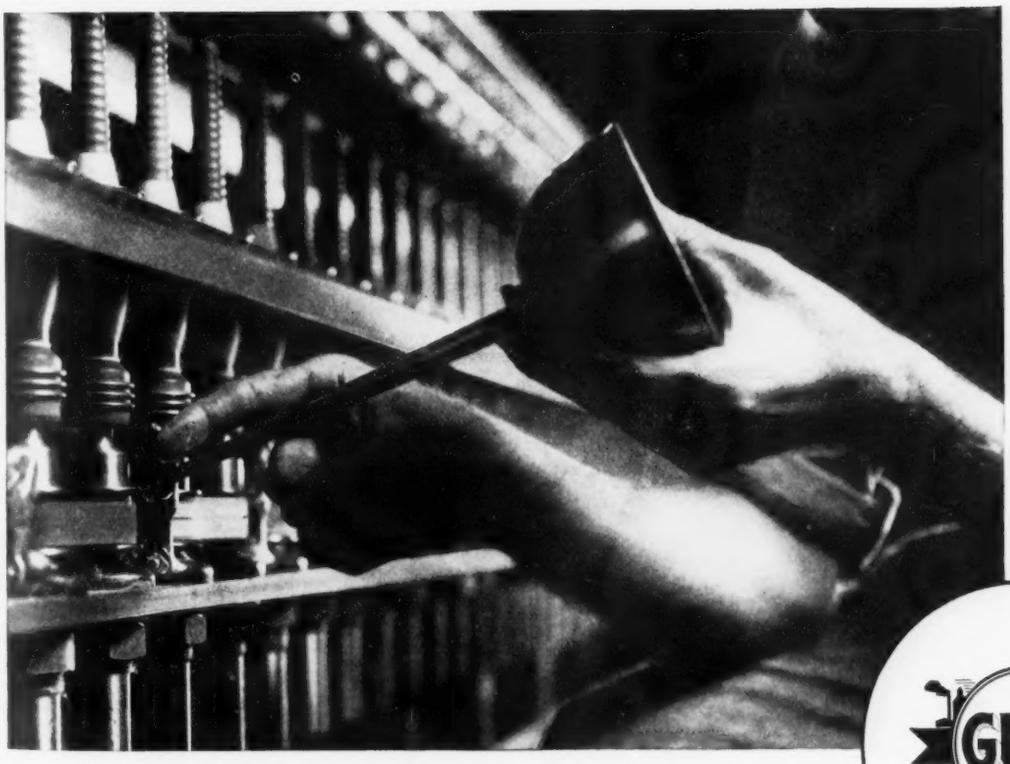
There's good reason why fewer threads should break when spindles are lubricated with Gulfgem Oil. For Gulfgem has been refined by Gulf's exclusive Alchlor process, which produces a spindle oil of greater stability than any of which we have record. Because the elements which oxidize readily have been removed, there is practically no change in the viscosity of Gulfgem, either from temperature variation or oxidation. Thus a constant load and smooth operation are insured.

An oil with this high degree of refinement can be used over longer periods of time with minimum deterioration. Better lubrication will be maintained with a lower rate of oil consumption.

In Gulf's large staff of field engineers are a group of men who have made a special study of the lubrication of textile mill equipment. These textile specialists work each day with operating men in mills throughout the country. They are well qualified to recommend improved lubrication practice for the equipment in your plant. If you are not receiving the benefits of Gulf lubrication service now, we suggest that you talk this matter over with the Gulf man the next time he calls. You will not be obligated in any way. Gulf Oil Corporation — Gulf Refining Company, General Offices, Gulf Building, Pittsburgh, Pa.



*Maximum stability with minimum change in viscosity — either from temperature variation or oxidation — insures a constant load and smooth operation when Gulfgem Oil is in service. The result is fewer breaks and ends down.*



*Because of the unparalleled stability of Gulfgem Oil, it can be used over long periods of time with minimum deterioration. Thus, long life and a low rate of consumption are assured.*

GULF INDUSTRIAL LUBRICATION

# GULFGEM OIL

***FOR MORE EFFICIENT***

***SPINDLE LUBRICATION***

# Gentle as a kitten

## to every man-made or natural fiber..

SOMEWHERE in your processing picture—whether your interests be in woolens, worsteds, silks, rayons, acetates or cottons—there's a logical place for Olate. Logical because this pure, neutral, low titer soap treats every natural or man-made fiber with exceptional gentleness. And gentleness, you'll agree, is a mighty important factor in assuring saleable fibers and fabrics.

### *CHECK THESE 6 OUTSTANDING OLATE SAFETY FEATURES*

**Exceptionally low titer.**

**Unusually rapid solubility.** Due to the high proportion of the carefully refined *liquid oils* from which it is made.

**Quick, complete rinsibility.** An important safety factor in processing synthetic and animal fibers. Assures complete rinsing at *far lower temperatures* than with other textile soaps.

**Stability against rancidity.** Careful selection and refinement of its basic oils, makes Olate unusually resistant to oxidation and rancidity. Olate's stability, coupled with its complete rinsibility, guards against discoloration and odor which results when less easily rinsed soaps are left in fiber or fabric.

**Neutrality.** Important in processing operations where alkali is harmful to the fiber.

**Low rate of hydrolysis.** The result of Olate's low titer and carefully selected base stocks.

Confirm these unique safety features of Olate with a test run. It will give you some interesting ideas about efficiency, gentleness and economy.

# Olate

*the universal textile soap*

*Procter & Gamble · Cincinnati, Ohio*

QUALITY LOOM HARNESS EQUIPMENT

# Stehedco

TRADE MARK

# REEDS

*should be products of Science*

They play a most important part in the product of first quality goods. "Reed Marks" are an altogether too common fault and can be avoided by discrimination in buying—by careful consideration of the following points of construction—

1st Reed must be built to suit the particular fabric being woven—

2nd Reed Wires should be super-flexible to permit passage of all knots and maintain original alignment—

3rd Proper metal and air space ratio must be maintained to permit sufficient freedom for threads to pass—

4th Correct thickness of wire must be used to prevent reed wires from bucking under repeated shock.

Every STEHEDCO Reed is so built.

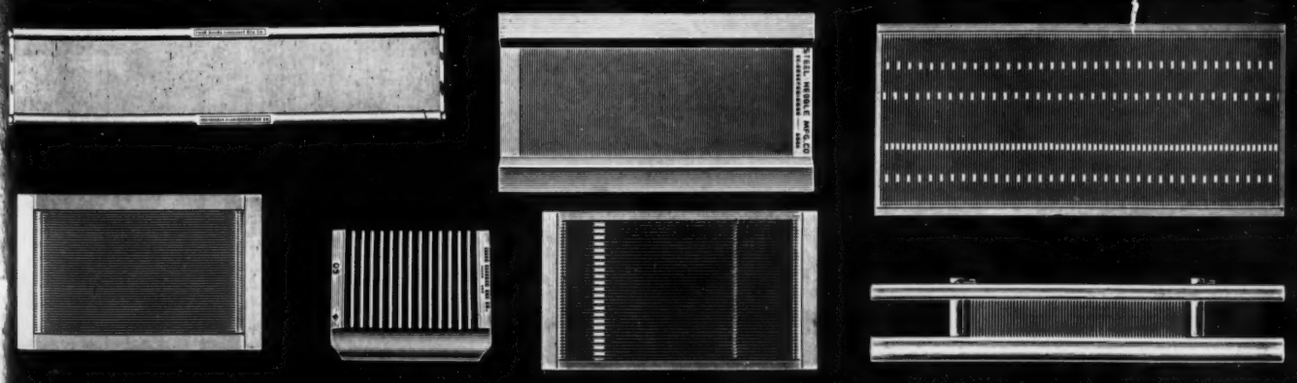
Send us your specifications.

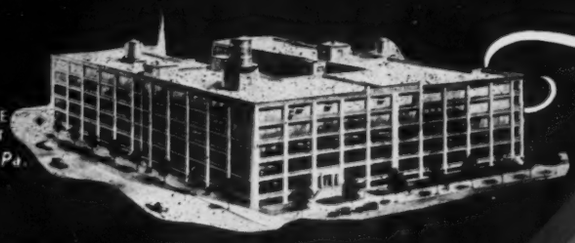
*Steel Heddle Mfg. Co.*

STEHEDCO HEDDLES · REEDS · FRAMES AND HARNESS ACCESSORIES

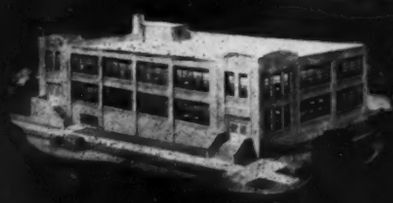
2600 W. Allegheny Avenue PHILADELPHIA, PA.

**ALL-METAL AND PITCH BAND TYPES • STANDARD AND SPECIAL DESIGNS**





MAIN OFFICE
AND PLANT
*Philadelphia, Pa.*



BRANCH OFFICE
AND PLANT
*Greenville, S. C.*

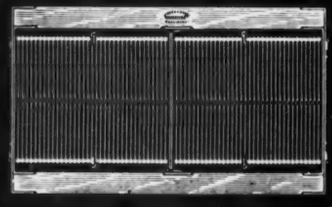
CANADIAN OFFICE
AND PLANT
*Montreal, Quebec*

# *Where Products of Science are Produced*

**Be it a delicate silk heddle or a heavy wire weaving heddle—a frame—reed—or in fact anything pertaining to LOOM HARNESS EQUIPMENT this Company produces it scientifically—with the utmost care and attention. They are not limited to one plant but have four large, scientifically managed and equipped plants strategetically located to render the most intimate and personalized service to those located in that area. Everything that science, experience, and money can buy has been done to give you, the user, the most satisfactory product you can buy.**

FLAT
STEEL
HEDDLES
*(Patented)*

HEDDLE FRAMES
*(Patented)*



## *Steel Heddle Mfg. Co.*

"STEHEDCO" HEDDLES · REEDS · FRAMES AND HARNESS ACCESSORIES.

2100 W. ALLEGHENY AVE., PHILADELPHIA, PA.

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RIO DE JANEIRO, BRAZIL, S.A.
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HARNESS ACCESSORIES
*(Patented)*

PITCH BAND AND ALL
METAL REEDS *(Patented)*

**QUALITY LOOM HARNESS EQUIPMENT**

TRADE MARK

# Stehedco

PRINTED IN U. S. A.

# Announcing TERGITOL Penetrants

## . . . . new surface-active compounds, that speed the penetrating power of water

"TERGITOL" is the trade-mark for a group of powerful wetting, penetrating, and introfying compounds which possess remarkably great surface activity even under conditions of high dilution. Water containing as little as one-tenth of one percent of a "Tergitol" penetrant will wet instantly and uniformly cloth, yarn, or raw stock. In "pressure" dyeing machines and other agitated baths, smaller quantities of "Tergitol" penetrants are sufficient. This powerful wetting action is achieved even in the presence of other chemicals and in hard water. "Tergitol" penetrants are effective in all "wet" textile processes, from the soaking of silk and the mercerizing of cotton to the dyeing of all types of fibers. They also aid in the carbonizing and felting of wool and in the kier-boiling, printing, dyeing and conditioning of cotton and rayon fabrics. "Tergitol" penetrants will help to speed production, to lower costs, and to make better fabrics.

Since so little of a "Tergitol" penetrant is required, the benefits of "wetter" water are available at very low cost. Investigate the possibilities of "Tergitol" penetrants wherever you use water or aqueous solutions. Carbide and Carbon Chemicals Corporation will be pleased to consult with you.

In addition to the remarkable property of making "wetter" water, "Tergitol" penetrants also

- . . . . are unaffected by hard water
- . . . . are stable in acids, alkalies, and salts
- . . . . assist in oxidizing, reducing, and bleaching
- . . . . emulsify non-compatible liquids
- . . . . increase hygroscopicity of treated materials
- . . . . disperse lime soaps
- . . . . will not exhaust readily
- . . . . increase detergency
- . . . . rinse out readily
- . . . . aid level dyeing

CARBIDE AND CARBON CHEMICALS CORPORATION

*Unit of Union Carbide and Carbon Corporation*

UCC

30 East 42nd Street, New York, N. Y.

PRODUCERS OF SYNTHETIC ORGANIC CHEMICALS

ENTRANCE TO MAIN BUILDING AT HERCULES EXPERIMENT STATION, NEAR WILMINGTON, DELAWARE

THROUGH research and technical service work, in cooperation with consumers, the quality of Hercules Naval Stores products has been improved steadily, their suitability for various new uses increased, and new uses have been discovered and developed. We serve many industries, among which are textile, protective coating, soap, and disinfectants. Whenever our aid is required to help obtain maximum results with our products, we are anxious to assist.

**STEAM-DISTILLED PINE OIL**

«»

**STEAM-DISTILLED WOOD TURPENTINE**

«»

**WOOD ROSIN**

«»

**TERPENE CHEMICALS**

*HERCULES NAVAL STORES*

HERCULES POWDER COMPANY
INCORPORATED
994 Market Street, Wilmington, Delaware

BRANCH OFFICES: CHICAGO, NEW YORK, ST. LOUIS, SALT LAKE CITY, SAN FRANCISCO

IN-57

# Good huntin'!

At this time we like to get away from our job long enough to sincerely extend our best wishes for renewed and continued success to our customers and friends during the coming year.

May this be the best season you have ever had—we hope you will enjoy "Good Huntin'" in 1938.

## AMERICAN

YARN AND PROCESSING COMPANY

MOUNT HOLLY N. CAROLINA

*It's the yarn that counts*

AMERICAN *Super-Mercerized* Durene

## *Through the Centuries with Alkalies*

Long before the Roman era, glass making was an advanced art in Egypt, though contrary to the general assumption, the Egyptians undoubtedly learned it from a still earlier people. Some beautiful specimens of Egyptian glassware belonging to the XVIII Dynasty are still preserved. Here we see Egyptian glass makers forming the fused sand and wood ashes (soda) into hollow vessels.

**The refined soda of today contains none of the variation of quality common to the early production of natural soda. As produced under COLUMBIA'S system of rigid control, uniformity approaches the absolute; impurities, the vanishing point. COLUMBIA Control enables you to BE SURE that every shipment is like every other; every bag of soda ash, every drum of caustic, like every other. You can depend upon COLUMBIA.**

# COLUMBIA

**SODA ASH**
**CAUSTIC SODA**
**SODIUM BICARBONATE**
**MODIFIED SODAS**
**LIQUID CHLORINE**
**CALCIUM CHLORIDE**

**THE COLUMBIA ALKALI CORPORATION**

BARBERTON • OHIO

NEW YORK CHICAGO BOSTON PITTSBURGH
CLEVELAND CINCINNATI ST. LOUIS MINNEAPOLIS

# Dulls the teeth of Corrosive Acids . . .

*Strips of lead with and without tellurium content after immersion in 96% sulphuric acid at 305° C. for 3 minutes. Tellurium lead weight loss, 0.97% — other lead, 5.11%.*

**New Low Price Now in Effect**

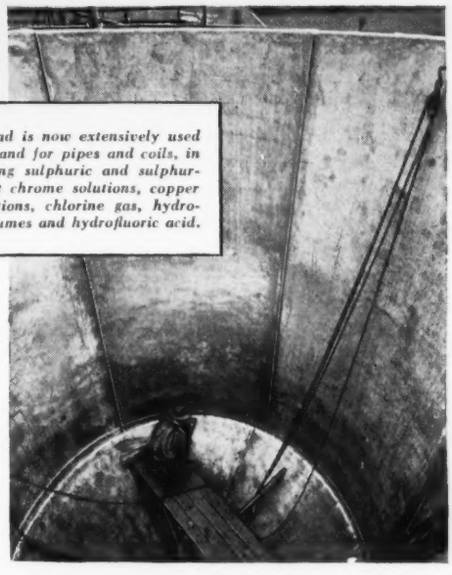
EVIDENCE in favor of Tellurium Lead is piling up. First came laboratory tests like the one illustrated above. They indicated that Tellurium Lead held possibilities in the direction of greater acid resistance, even at the higher temperatures.

Now these laboratory results are verified by plant service covering a wide variety of applications in many industries. In the panel at right are two typical service reports.

Another important quality of Tellurium Lead is this: It possesses the property of strengthening under stress. In other words, it work-hardens. Stretching, bending, hammering and other forms of mechanical action increase the tensile strength and fracture-resistance of Tellurium Lead. In addition, Tellurium Lead affords superior resistance to fatigue failure caused by vibration.

Tellurium Lead of our manufacture is St. Joe chemical lead alloyed with a small quantity of tellurium. It gives the advantages of this time-tested chemical lead plus important new ones. Yet now, due to a price reduction, it costs only a fraction of a cent more per pound than chemical lead. Available in sheets, pipe and coils. For further facts, write to nearest branch.

*Tellurium Lead is now extensively used to line tanks and for pipes and coils, in plants handling sulphuric and sulphurous acids, hot chrome solutions, copper sulphite solutions, chlorine gas, hydrochloric acid fumes and hydrofluoric acid.*



**A MANUFACTURER REPORTS:**

**"We used your tellurium sheet lead to line an acid-cutting tank. Strong sulphuric acid is dumped into the tank and sufficient water added to bring it to the proper strength. This naturally generates considerable heat. The operation has been repeated daily for nearly three years. To date no leakage or other difficulty has been experienced. The lining is as good as the day installed. We feel that Tellurium is entirely responsible for this as we have never before had such a favorable result."**

• • •

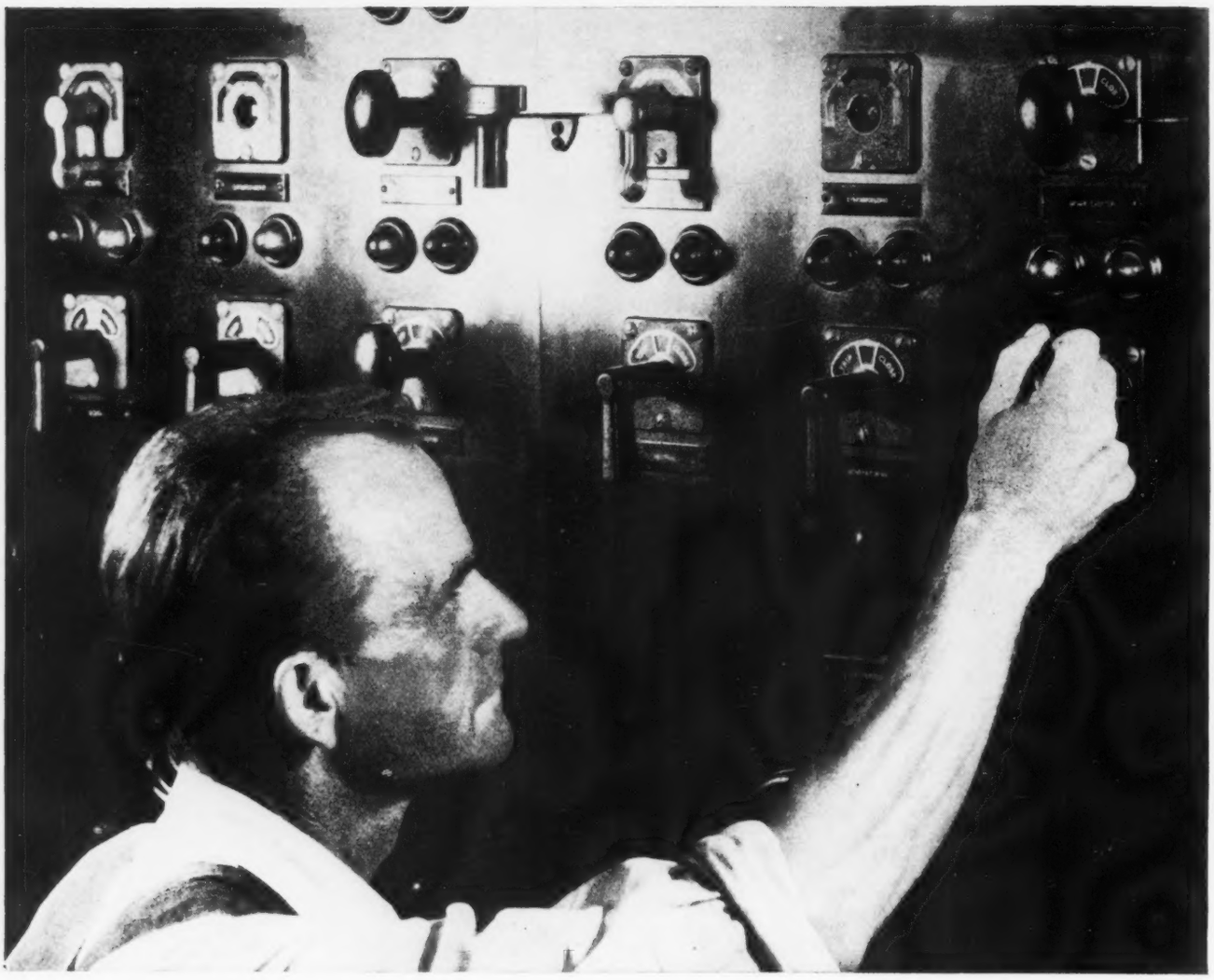
**ANOTHER USER WRITES:**

**"I wish to say that your tellurium lead pipe has proven all you claimed. It is easy to weld and easy to flange. Also the flanges stand up a good deal better than ordinary lead as they seem to actually become stronger at the turnover point."**

**NATIONAL LEAD COMPANY**

New York, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, St. Louis; National-Boston Lead Co., Boston; John T. Lewis & Bros. Co., Philadelphia; National Lead & Oil Co., Pittsburgh; Georgia Lead Works, Atlanta; Gibson & Price Co., Cleveland; American Lead Corp., Indianapolis; Master Metals, Inc., Cleveland; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.

# Tellurium Lead



# The More Power to Him!

A CHANCE visitor might attribute C. J. Dorst's passion for keeping everything "just so" to temperament or to plain fussiness. But as power plant operator at Mathieson's Lake Charles plant, Dorst's job carries responsibilities which call for precisely this sort of thoroughness.

For not only must power service throughout Mathieson's plant be continuous. Its output must be closely controlled; voltage and frequency must be kept within narrow limits; generators must be accurately synchronized. Only in this way can Mathieson take full advantage of the low-cost raw materials and fuel at Lake Charles, and translate these into outstanding quality for its products.

Mathieson's generating equipment at Lake Charles comes as close to perfection as the rest of the units in this modern alkali plant. Yet all this equipment would mean little to you were it not for the supervision of men like C. J. Dorst. In large measure, it is these men—faithfully handling hundreds of "big little" jobs—who make Mathieson an organization to which you can look with unwavering confidence.

*The* MATHIESON ALKALI WORKS (*Inc.*)
60 East 42nd Street New York, N. Y.

*Soda Ash . . . Caustic Soda . . . Bicarbonate of Soda . . . Liquid Chlorine Bleaching Powder . . . HTH and HTH-15 . . . Ammonia, Anhydrous and Aqua PH-Plus (Fused Alkali) . . . Sulphur Chloride . . . CCH (Industrial Hypochlorite) Dry Ice (Carbon Dioxide Ice)*

*Mathieson Chemicals*